ASTRONOMICAL OBSERVATIONS

MADE

DURING THE YEARS 1849 AND 1850,

AT THE

U. S. NAVAL OBSERVATORY,

WASHINGTON,

APPROVED BY

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CHIEF OF THE BUREAU OF ORDNANCE AND HYDROGRAPHY,

AND PUBLISHED BY AUTHORITY OF

THE HONORABLE ISAAC TOUCEY,
SECRETARY OF THE NAVY.

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VOLUME V.

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INTRODUCTION.

The Observatory is also the Hydrographical Office of the Navy. It is likewise the depot at which the charts and instruments for the naval service are collected, and from which they are distributed to the public cruisers. Here, too, the Wind and Current Charts are constructed, the investigations connected with them conducted, and the Sailing Directions which accompany them prepared and published.

The chronometers and other nautical instruments are in the special charge of Lieutenant Julian Myers.

Lieutenant E. C. Stout, assisted by Lieutenant S. Magaw,* has charge of the service chart department. These two officers find full occupation in overhauling and setting aside charts that are worn out or that have been replaced by more recent and accurate surveys, in arranging them on the shelves, and in getting them out for use on board ship.

Other Lieutenants are employed in the construction of the Wind and Current Charts, or in the investigations connected therewith, or as hydrographers, varying in numbers according to the exigencies of the service. Within the last month or two this force has been largely increased. It consists at this time of Lieutenants E. G. Parrot, J. J. Guthrie, Henry S. Newcomb, T. T. Houston, and Robert L. May.

In the astronomical department the force consists of Mr. James Ferguson, Assistant Astronomer, Professors A. G. Pendleton, M. Yarnall, James Major, Joseph S. Hubbard, and A. W. Lawrence. The eyesight or health of Professors Pendleton, Hubbard, and Lawrence, is such as greatly to interfere with the due performance of their duties. Indeed, Professor Pendleton is entirely prevented by the state of his eyes from observing at all. Owing to the smallness of the force, and its disabled condition, the reduction of astronomical observations has fallen behind hand.

In a new country like this, where so many boundary lines have to be run, and where so many parties are engaged with geographical explorations, &c., in the field, the demand for special or corresponding observations is very considerable. This, with the increasing number of known asteroids, the observations connected with them, including the stars of comparison to which they are referred, and the impaired health of officers, have so interfered with the regular duties of the small astronomical force connected with the establishment as to have rendered a suspension of work on the general catalogue necessary.

The following order shows the detail for the current year:

"OBSERVATORY, WASHINGTON, *January* 6, 1859.

"*To the Officers engaged on Astronomical duties:*

"In consequence of the smallness of the astronomical force, and the amount of back work that has accumulated upon us, I invite the attention of observers and computors to the following arrangement:

"The instruments working in the Meridian will be employed chiefly in observing stars omitted in other catalogues, or stars of comparison, as they may be required by government expeditions, or by the Observatory and its correspondents. They will also observe, from time to time, for moon culminations and such other objects as may be specially designated. They will observe standard stars only for instrumental and clock errors. The reduction of all the observations to keep pace with the observations themselves.

"The Equatorial will be employed as heretofore.

"Besides attending to the current observations, gentlemen are requested to address themselves to back work, as follows:

* In the ten days that have elapsed since the above was written, these three officers have been ordered to sea. These frequent changes in the personnel of the establishment are unavoidable, but they operate as a great drawback. Each new comer has to be instructed as to his specialty, and often, by the time he has become familiar enough with its details and processes to be useful, he is called away on other service—the results of his labors, under such circumstances, being generally lost. Hence the force nominally on duty at the Observatory is necessarily not as effective as, judging by its number and the supposition that all are experts, it ought to be.

"Professors Pendleton and Major, and Mr. Ferguson, will take up the zone observations for reduction, beginning with the earliest.

"Professor Lawrence will take up the observations with the transit for 1851 and 1852. Professor Yarnall those of the Mural for the same years, and Professor Hubbard those of the Meridian Circle for the same time; Mr. Ferguson completing the back work of the Equatorial.

"Gentlemen will please bear in mind that it has been made, by command of the Secretary of the Navy, the special duty of the Observatory, after attending to those observations only which are of a pressing nature or of immediate practical importance, to make a complete catalogue of all the stars that the instruments here are capable of reaching.

"In carrying out this order observers will give preference to the subjects of observation, &c., accordingly.

"Respectfully, &c.,

"M. F. MAURY.

" Mr. JAMES FERGUSON, *Assistant Observer.*
" Professors A. G. PENDLETON,
" M. YARNALL,
" JAMES MAJOR,
" J. S. HUBBARD,
" A. W. LAWRENCE."

The Prime Vertical Transit Instrument is idle for the want of an observer; and for the same reason the Refraction Circle lies unpacked in the boxes. The Meridian Circle has been under repairs for the last two years. The circles originally belonging to it were found defective, and new ones have been fitted to it by William J. Young, of Philadelphia: It is now remounted and ready for work, under Professor Hubbard.

In September last I requested the Assistant Astronomer, Mr. Ferguson, to give his attention also to the arrangement and preparation of the observations for publication. Under his immediate supervision this volume has been prepared and passed through the press.

The following statement shows the condition of the observations herein presented at the time of the new arrangement.

The observations of the Transit made in the year 1849 by Professors Beecher and Keith, some of the preparatory reductions of which had been computed by these gentlemen and by Professor Winlock, making in all seventeen pages, had been finally reduced and prepared for publication by Professor Lawrence.

The observations of the same instrument for the year 1850, made also by Professors Beecher and Keith, and filling fifty-five pages, were in the hands of Professor Hubbard, to whom they had been assigned for reduction, and they had nearly all been reduced. The tables of results were subsequently prepared by Mr. Ferguson.

The work of the Mural Circle done in the years 1849 and 1850, in the former year by Professor Coffin and Lieutenant Steedman, and in the latter by Professor Benedict, and of which some of the preliminary computations had been made by Professor Coffin, had been finally reduced and prepared for publication by Professor Yarnall.

The observations of the Meridian Circle made in the years 1849 and 1850 by Professor Major, and by him reduced, filling eighty-three pages, were then ready for the press, and he was engaged in writing the prefatory remarks.

Of the Prime Vertical Transit, the observations for 1849 and 1850 had been made and reduced by Professor Hubbard and Lieutenant John L. Worden. The tables of results were also prepared by Mr. Ferguson.

The observations with the Equatorial for the two years above mentioned, which had been made and reduced by Mr. Ferguson, were also ready for publication, except that the places of many of the stars of comparison still depended upon the printed catalogues, and had not been observed by the fixed instruments of this Observatory. As this defect could be supplied by subsequent observations, it was not deemed necessary to delay the publication on this ground. The stars whose places were then wanting have, for the most part, been subsequently determined by observations of Professor Yarnall.

In observing with the Electro-Magnetic Chronograph, the Morse register is preferred chiefly on account of the circumstance that the machinery connected with it is less liable to derangement, and when out of order may be more readily repaired.

THE WEST TRANSIT INSTRUMENT.

This instrument has been minutely described in the introduction to the volume of observations for 1845.

The telescope has a clear aperture of 5.3 inches, and a focal length of 7 feet 1 inch. It is mounted upon large piers of granite, which rest firmly on a foundation of stone, extending ten feet below the surface of the ground.

The observers during the years 1849 and 1850 were Professor Mark H. Beecher and Professor R. Keith. For the determination of their personal equation the same star was observed by them alternately, over alternate wires at the same culmination. The mean of twenty-four observations gave the time by Professor Keith $0^s.36$ later than that by Professor Beecher. Putting K for Keith's time of transit, and B for Beecher's,

$$K = B + 0^s.36 \pm 0^s.012$$

In obtaining the rate of the clock, and in correcting the observations of one observer for the clock-error determined from the observations of the other, this quantity has been used.

The observations with this instrument occupy pages 1 to 74, inclusive, of the present volume.

The first column of each page contains the date, the day beginning with the transit of the sun.

The second contains the numbers for reference.

The third contains the name of the object observed. For stars, preference has been given in order to the name given in the Nautical Almanac, the Greek letter of the Catalogue of the British Association, the number of that catalogue with the name of the Constellation, the hour and number of Weisse's Catalogue, the number of other catalogues. Stars not found in any catalogue are designated by the declination alone.

Previously to July —, the fourth to the tenth column, inclusive, contain the seconds for the time of transit over each wire, as noted by the observer. Afterwards, the fourth column contains the position of the clamp. The fifth contains the set of wires over which the observations were made. The sixth to the tenth, inclusive, contain the seconds for the time of transit over each wire, as noted by the observer.

The eleventh contains the mean of the preceding times of transit over the wires observed.

The twelfth to the fourteenth column, inclusive, contain the reduction to the meridian, the reduction of the limb of a body to its centre, and the correction of the clock.

The reduction of an observation to the meridian involves three steps: first, the reduction of the mean of the wires observed to the mean of all; second, the reduction of the mean of all to the plane in which the instrument revolves; third, the reduction of this plane to the plane of the meridian.

Calling the first and second of these reductions taken in parts of a great circle C and c; and the third, also taken in parts of a great circle, m when the instrument points to the equator, and n when it points to the pole; and putting S for their correction in time at any declination δ, we shall have

$$S = C \sec. \delta + c \sec. \delta + n \tan \delta + m.$$

From the commencement of 1849 until April 2, 1850, the system of wires used consisted of seven vertical wires, and one horizontal in a fixed diaphragm, and five horizontal wires in a movable diaphragm. The intervals of these last were smaller than of the seven transit wires.

The reductions of each transit wire to the mean of the seven are as follows:

	To Jan. 17.	To Jan. 24.	To Sept. 7.	To April 2, (1850.)
	s.	s.	s.	s.
A	+ 37.481	+ 37.482	+ 37.536	+ 37.551
B	24.998	25.086	25.005	25.026
C	12.508	+ 12.536	+ 12.535	12.512
D	+ .046	— .077	.000	+ .010
E	— 12.508	12.570	— 12.499	— 12.521
F	25.006	25.002	25.020	25.031
G	— 37.519	— 37.457	— 37.548	— 37.546

the wires being lettered in order from the side next to the clamp of the axis.

On the 2d of April, 1850, after the introduction of the electro-magnetic method of recording had rendered shorter intervals desirable, the diaphragm containing the five wires with short intervals was turned 90°, and transits were observed over the five.

The reductions of each wire to the mean of the five are as follows:

(April 2 to July 18,) 1850.

A	+ $\overset{s}{8}.016$
B	+ 4.045
C	+ 0.085
D	— 4.089
E	— 8.059

In July, 1850, a new diaphragm, constructed with special reference to the electro-magnetic method of recording, was introduced. It contained five sets or tallies of five wires each, the intervals in each set being very small and purposely unequal, in order to indicate the separate tallies used by an inspection of the observation. The approximate values for each set are as follows:

$\overset{s}{3}.0$	$\overset{s}{2}.5$	$\overset{s}{2}.0$	$\overset{s}{2}.0$	$\overset{s}{2}.5$
2.5	2.0	2.0	2.5	3.0
2.5	2.0	2.0	2.5	3.0
3.0	2.5	2.0	2.0	2.5

The reductions of the mean of each set to the mean of the twenty-five wires are as follows:

A	+ $5\overset{s}{7}.549$
B	+ 28.080
C	+ 0.003
D	— 28.046
E	— 57.585

C sec. δ has been corrected by means of the following table for stars near the pole, (arc — sin) being taken out for each wire observed, and the sum, divided by the number of wires, added to C sec. δ:

H. Angle.	(Arc — sin.)	H. Angle.	(Arc — sin.)	H. Angle.	(Arc — sin.)
m.	s.	m.	s.	m.	s.
3	0.00	12	0.33	21	1.76
4	.01	13	.42	22	2.03
5	.02	14	.52	23	2.32
6	.04	15	.64	24	2.63
7	.07	16	.78	25	2.97
8	.10	17	0.94	26	3.34
9	.14	18	1.12	27	3.74
10	.19	19	1.31	28	4.17
11	0 25	20	1.52	29	4.64

C was frequently determined with the collimating eye-piece. Putting 2Δ and $2\Delta'$ for the distance of the middle wire west of its image when the clamp is east and west respectively, $2p$ for the excess of the clamp pivot, r for the reduction of the mean of the wires to the middle wire, and a for the correction for diurnal aberration in latitude φ (for this Observatory $a = -0^s.016$).

$$C = \tfrac{1}{2}(\Delta - \Delta') - p + r + a \text{ for clamp east.}$$
$$C = -\tfrac{1}{2}(\Delta - \Delta') + p - r + a \text{ for clamp west.}$$

If b represent the depression of the eastern end of the axis,

$$b = -\tfrac{1}{2}(\Delta + \Delta') - p \text{ for clamp east.}$$
$$b = -\tfrac{1}{2}(\Delta + \Delta') + p \text{ for clamp west.}$$

Up to July 18, 1850, in measuring the quantites 2Δ and $2\Delta'$, the micrometer wire, then horizontal, was separated from a fixed wire until the space enclosed between them was judged to be equal to the interval between the middle wire and its image, and this space measured with the micrometer. After July 18, 1850, the micrometer wire, now vertical, was made to coincide first with the middle wire, then with its image, and the space measured with the micrometer.

The quantities n and m were determined from the observations, as often as they furnish the data, by means of the formulæ—

$$n = \frac{(\alpha - \tau) - (\alpha' - \tau') - c\,(\sec\delta - \sec\delta')}{\tan\delta - \tan\delta'}$$
$$m = b\sec\varphi - n\tan\varphi$$

in which α, τ and δ are respectively the right ascension, time of transit and declination of any star, and α', τ' and δ' those of another star differing as much as possible in declination, and but little in time.

The semi-diameters were interpolated from those given in the Nautical Almanac.

The correction of the clock has been determined on each day from all the Nautical Almanac stars observed south of 40° north declination, and a mean of the determinations adopted for the correction at a mean of the times of transit.

The fifteenth column contains the reduced right ascensions.

The sixteenth contains the reductions of stars to their mean places for the beginning of 1850. These have been computed from the tables in the appendix to the volume of observations for 1847.

On pages 388 to 398 have been collected the mean places of each star observed. Those rejected in taking the mean are enclosed in brackets.

On pages 420 to 425 are given the comparisons of the observations of the sun, moon, and planets, with their tabular places interpolated for the longitude of the Observatory, with 2d and 3d differences from the Nautical Almanac.

THE MURAL CIRCLE.

The Mural Circle is mounted in the east wing of the Observatory upon the eastern face of the sand-stone pier, to which it was removed in the latter part of the year 1845.

The Circle is a single casting of brass, five feet in diameter. The divisions are cut 5′ apart, in a band of gold, which is inserted in the rim. They are read by means of six of Troughton's reading microscopes, which are mounted firmly on the face of the pier and adjusted, as nearly as practicable, 60° from each other. The microscopes are designated in the observations by the letters A, B, C, D, E, F. They are adjusted, as to focal length, so that five revolutions of the micrometer-screw of each will measure one space, or 5′ of the circle. The micrometer heads are divided into sixty parts. In reading the circle, the seconds and parts are taken from each of the six microscopes, the degrees and minutes from A alone; which is mounted on the north side of the pier, and in the horizontal line which passes through the centre of the circle.

The other microscopes are so arranged, that

	B	C	D	E	F
the readings for	B	C	D	E	F
= the readings for A	+ 180°,	+ 300°,	+ 120°,	+ 240°,	+ 60°, respectively.

The divisions are illuminated by a lamp placed behind the pier in a line with the axis of the instrument; the light from this lamp passes through six holes, drilled through the pier, directly to the reflectors attached to the several microscopes. A less variable illumination is thus secured than by means of lamps carried in the hands.

The circle is adjusted to a vertical position by means of a plummet suspended by a fine silver wire, with the aid of appendages attached to the telescope, known as Ramsden's Ghosts; and to its position in the meridian by observations of transits of circumpolar stars.

The telescope has an object-glass of four inches clear aperture, with a focal length of five feet. It is attached to an independent axis, moving within the axis of the circle, and may be moved to any position with reference to the graduations. The ends of the tube, or the cells supporting the object-glass and the micrometer, are firmly clamped to the rim of the circle. During these years the position of the telescope has been such that when directed to the zenith the circle reading has been nearly 20° 0′ 0″.

The eye-end of the telescope was, until the latter part of May, 1849, furnished with a fixed diaphragm, containing seven vertical wires, designated I, II, III, &c., nearly equidistant, and at an average interval apart of $15^s.4$ (of time,) and one horizontal wire designated as the fixed wire. At that date a new set of wires was inserted, consisting of five vertical wires inserted in the scores for II, III, IV, V, VI, and a new horizontal wire. These wires were broken out and renewed in June, 1850. The adjustments of this diaphragm consist in placing it in the principal focus of the object-glass; turning it so that an equatorial star will exactly run along the fixed wire; and, the circle having been adjusted to an exact vertical position and the telescope directed to the nadir, moving the diaphragm so that vertical wire IV will coincide with its image reflected from a surface of mercury and seen by means of the collimating eye-piece.

In connexion with the fixed diaphragm is another, movable by a micrometer screw, and furnished with five wires nearly parallel, and placed five, fifteen, fifteen, five revolutions of the micrometer apart. In the record of the work in which they are employed, they are numbered 1, 2, 3, 4, 5, in the order of the micrometer scale, *i. e.*, commencing in the southern part of the field of view; these were broken out and reinserted in the latter part of May, 1849, and June, 1850. The adjustment of this diaphragm consists in making wire 3 parallel to the horizontal fixed wire.

The head of the telescope micrometer is divided into one hundred parts. It is adjusted so that when wire 3 is moved into coincidence with the fixed wire the micrometer reading shall be $30^r.000$; 30^r indicating the notch of the micrometer scale which is intersected by the fixed wire. In reading the micrometer that notch of the scale is noted which the wire used in the observation has passed.

OBSERVATIONS.

The observations have been made with the micrometer wires, the circle being generally set on the nearest division, so as to avoid any error for runs, and kept in this position by means of a clamp until the bisections were made. These have generally been made—except for the circumpolar stars—on the vertical wires. Where an object has not been observed on these wires the time of each bisection or contact has been carefully noted.

In observing both limbs of a planet alternate contacts have been made with each limb.

In observing the sun and moon a separate setting of the circle has been made for each limb, and the times of making the contacts carefully recorded.

The instrument is furnished with screens to protect it in observations of the sun.

In all observations care has been taken to note the times of one or more bisections or contacts; to note the indications of the barometer and external thermometer, particularly the latter, and to read the circle immediately after or before observing the object.

In almost all the observations a power of 125 has been employed.

NADIR POINT.

The determinations of the nadir point have been made, as in the preceding years, by means of the collimating eye-piece. The telescope being directed downwards, the circle is set on 200° 0′ 0″ nearly, and wire 3, illuminated by means of this eye-piece, is made to coincide with its image reflected from a basin of mercury. Each determination consists generally of several such coincidences, the wire and its image being brought into coincidence from opposite sides. The circle is carefully read before and after the coincidences are made, and the micrometer zero is the mean of the readings of the telescope micrometer corrected for eccentricity of the micrometer head and the excess of the circle-reading above 200° 0′ 0″—or what it wants of that quantity—reduced to parts of a revolution. In cases where any other wire than wire 3 has been used a correction has been applied, to reduce its readings to that of wire 3.

VALUE OF ONE REVOLUTION OF THE TELESCOPE MICROMETER.

The following observations have been made by Professor Coffin in 1849, and Benedict in 1850, with the collimating eye-piece, for determining the equivalent of one revolution of the telescope micrometer.

Let C represent the Circle Readings, corrected for runs and errors of division (*);

m, the corresponding micrometer readings, when the wire employed is brought into coincidence with its reflected image, corrected for the eccentricity of the micrometer head (†);

n, the number of positions of the circle;

dm, a small quantity applied so as to make the several values of μ, multiples of $2^r.39$, the equivalent nearly of 2′ 30″.

$$\mu = m - \frac{1}{n}\Big[\,m\,\Big] + dm$$
$$a = C - \frac{1}{n}\Big[\,C\,\Big] + 62''.75\ dm$$

The relation of the micrometer to the field of view, so far as following a regular law, is expressed by the equation:

$$\mu r + \left(\mu^2 - \frac{1}{n}\Big[\,\mu^2\,\Big]\right)\Delta r + \mu^3\,\Delta' r + \&c. \quad = a$$

in which r represents the equivalent of one revolution in the middle of the field, or at the fixed horizontal wire.

Each set of observations presents a symmetrical series, so that $\frac{1}{n}\,[m]$ is nearly $30r$.

The micrometer wire employed has been the middle one, or that designated as wire 3.

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* Table A, Wash. Ast. Obs., Vol. II, Int., page xii.

† Table E, Wash. Ast. Obs., Vol. II, Int., page xviii.

TABLE D.—VALUE OF TELESCOPE MICROMETER.

TABLE D.—Continued.

Date.	Corrected Circle Reading. C.	No. of Readings.	Corrected Mic. Reading. m.	No. of Readings.	EQUATIONS. μ	EQUATIONS. $\dfrac{\mu^2 - \frac{1}{n}[\mu^2]}{2.39^2}$	EQUATIONS. α	Values of r and Δr.	
1849.	° ′ ″		w. r.				′ ″		″
June 26	199 57 28.48d	4	1 28.2127 2 .2117 3 .2189 4 .2073	8 8 8 8	− 2.39	− 9 (Δr)	= − 2 29.66	2μ = 4.78	r = 62.810
	59 58.54	4	2 30.6081 3 .6126 4 .6118	8 8 8	0.00	10	− 0 0.21	(λ = 7.4)	r = 62.849
	200 2 28.14d	4	2 32.9886 3 .9894 4 .9448 5 .9768	8 8 8 8	+ 2.39	9	+ 2 30.57	30 × 2.39² Δr	= − 0.67
	4 59.86	4	3 35.4055 4 .4057 5 .3987	8 8 8	4.78	6	5 0.35	12	+ .40
	7 28.67d	4	3 37.7701 4 .7714 5 .7767	8 8 8	7.17	− 1	7 30.47	2	.32
	9 58.76	4	3 40.1506 4 .1613 5 .1567	8 8 8	9.56	+ 6	10 0.94	12	+ .11
	12 29.18d	4	3 42.5521 4 .5553 5 .5578	8 8 8	+ 11.95	+ 15	+ 12 30.81	18	− .90
	199 59 59.15		30.6175					10	+ .21
								(40.2) Δr	= − 0.0029
July 30	199 44 58.09	4	1 16.1950 2 .2064 3 .1993	8 8 8	− 14.34	+ 20	− 15 1.03	2μ = 28.68	r = 62.840
	49 59.04	4	1 20.0002 2 .9983 3 .9912	8 8 8	9.56	0	10 1.11	19.12	.861
	54 59.68	4	1 25.7734 2 .7743 3 .7782	8 8 8	− 4.78	− 12	− 5 0.39	9.56	.822
	59 60.27	4	2 30.5479 3 .5581 4 .5547	8 8 8	0.00	16	+ 0 0.31	(λ = 3.7)	r = 62.845
	200 4 59.42	4	3 35.3250 4 .3206 5 .3208	8 8 8	+ 4.78	− 12	5 0.19	40 × 2.39² Δr	= + 0.20
	9 57.16	4	3 40.0513 4 .0622 5 .0556	8 8 8	9.56	0	10 0.79	0	− .31
	14 58.61	4	3 44.8528 4 .8500 5 .8543	8 8 8	+ 14.34	+ 20	+ 15 1.23	24	+ .20
								16	− .31
	199 59 58.90		30.5366					(49.3) Δr	= + 0.0008

TABLE

The following table E contains the reduction to parallelism with the horizon for mic. wire 3. They are derived from observations of stars, where several bisections have been made at the same culmination; and are the corrections to be applied to the readings of the micrometer or circle, according to the terms in which they are expressed, when the observations have been made at vertical wires III or V; and they are multiplied by two for observations made at wires II or VI, and by three for observations made at wires I or VII.

TABLE E.—REDUCTIONS AT VERTICAL WIRE III.

DATE.	Δm_3^{III}	Δc_3^{III}	DATE.	Δm_3^{III}	Δc_3^{III}
	r	"		r	"
1849.—Jan. 4 to Jan. 27	+ 0.0008 =	— 0.05	1849.—May 17 to May 18	+ 0.0143 =	— 0.90
Feb. 3 to Feb. 10	.0014	.09	June 4 to June 22	+ .0014	— .09
Mar. 10 to Mar. 31	.0016	.10	July 2 to July 30	— .0005	+ .03
April 3 to April 30	.0012	.08	Sept. 24 to Oct. 11	— .0002	+ .01
May 2 to May 14	+ 0.0013	— 0.08	Oct. 25 to Nov. 7	0.0000	0.00
1850.—June 5 to June 11	— 0.0091 =	— 0.57	1850.—Sept. 2 to Sept. 24	— 0.0019 =	+ 0.12
July 1 to July 25	.0018	+ .11	Oct. 3 to Oct. 31	.0024	.15
Aug. 9 to Aug. 31	— 0.0021	+ 0.13	Nov. 1 to Nov. 30	— 0.0031	+ 0.20

The coincidences of the other wires at vertical wires I, IV, and VII, have also at several times been determined. The differences of the coincidences for wire 3 from these, $\Delta m_w^v = (3)^v - (w)^v$, ($v$ symbolizing the vertical, and w the micrometer wire) are given in the following table F. They constitute the reductions of the micrometer readings, when the observations have been made with the other wires, to what they would have been, if mic. wire 3 had been employed.

TABLE F.—REDUCTION OF MICROMETER OBSERVATIONS, Δm_w^v

For Mic. Wire . . .	2.			4.			5.		
At Vertical Wire . .	I. Δm_2^{I}	IV. Δm_2^{IV}	VII. Δm_2^{VII}	I. Δm_4^{I}	IV. Δm_4^{IV}	VII. Δm_4^{VII}	I. Δm_5^{I}	IV. Δm_5^{IV}	VII. Δm_5^{VII}
1849.									
February 19 . . .	+ .3016	+ .0821	+ .0734	+ .1634	+ .1397	+ .1198	+ .1327	+ .1219	+ .1024
24 . . .	.1069	.0867	.0705	.1496	.1429	.1236	.1247	.1190	.1080
				.1619	.1457	.1272	.1371	.1252	.1136
March 29 . . .	+ .0983	.0900	.0686	.1669	.1491	.1289	.1451	.1324	.1238
April 3 . . .		+ .0936			+ .1423			.1195	
May 20 . . .				+ .2498	+ .2707	+ .2901			

	1.			2.			4.			5.		
June 26		— .0012			+ .0044			— .0098			— .0166	
27	+ .0081	.0044	— .0066	— .0001	— .0126	— .0119	— .0156	.0130	— .0404	— .0146	.0203	— .0194
July 19		.0010			— .0065							
30		.0008			+ .0022			.0147			.0218	
Oct 26		— .0065			.0093			.0155			.0181	
27	+ .0174	+ .0019	— .0125	+ .0155	+ .0050	— .0011	— .0049	— .0112	— .0127	— .0141	— .0148	— .0138

PRINTED OBSERVATIONS.

The observations with the Mural Circle occupy pages 76 to 119 of this volume.

Column 1 of the left-hand page contains the date of the observations, the day commencing with the culmination of the sun.

Column 2 contains the number for reference. The asterisks indicate the observations which are referred to in the notes in the column on the right-hand page, headed Remarks.

Column 3 contains the names of the object observed. They have been taken from the several catalogues of stars in the following order of preference:

Nautical Almanac;
Catalogue of the British Association;
Weisse's Catalogus Stellarum ex Zonis Regiomontanis;
Bessel's Zones;
Lalande's Catalogue published by the British Association;
Piazzi's Catalogue;
Rumker's Catalogue of 12,000 fixed stars.

Stars not found in any of these are marked "Anonymous." The right ascensions and magnitudes (when noted) of those not found in the Catalogue of the British Association are given in the column of Remarks. Stars contained in that catalogue are designated simply by the constellation and number.

Column 4. The numbers in this column indicate the vertical wire, or the position between two vertical wires, at which the object was at the mean of the instants of observation. In 1849 the designation of the wires is I, II, III, IV, V, VI, VII. In 1850 the designation is I, II, III, IV, V.

Column 5 contains the hour angle at which the object was observed. It gives the mean of the hour angles of the several observations of each limb of the sun or moon, and the mean of all the hour angles when only one limb was observed, and the mean for the several observations of the circumpolar stars, except for Polaris, when the hour angle of each bisection is given.

The hour angle for the sun or moon is $h' = (\tau - a)\left(1 - \frac{da}{3610^s}\right)$;*

a representing the right ascension of the object, τ the sidereal time of observation, and da, the motion in right ascension in one hour of mean time. The right ascension of these bodies has been interpolated from the Nautical Almanac, with the assumed longitude from Greenwich, $5^h\ 8^m\ 14.64^s$ West.

Columns 6 to 12 contain the readings of each of the six circle microscopes, with their mean; the degrees and minutes are taken from microscope A alone.

Column 13 contains the mean of the readings of telescope micrometer reduced to the meridian; when any other wire than wire 3 has been used, its number and the reduction to wire 3 are given in the column of Remarks.

The reduction to the meridian is expressed by the formula,

$$dm = -\overset{r}{0.00206} \tan \delta\, (IV - v)^2;$$

in which v denotes the vertical wire, or the position between two vertical wires, at which the observation was made, or it is taken from table XIII, vol. I. The sign of this reduction is changed for direct observations below the pole, and for observations by reflection of stars above the pole.

* Table XIV, Wash. Ast. Obs., Vol. I, App., page 76.

In addition to the correction for reduction to the meridian, the numbers of this column have been corrected for eccentricity of the micrometer head by the following table E, vol. II.

Mic. readings.	Correction.	Mic. readings.	Correction.
— .00	— 0.0000	— .50	— 0.0023
.05	05	.55	19
.10	10	.60	14
.15	15	.65	08
.20	20	.70	— 01
.25	24	.75	+ 04
.30	28	.80	09
.35	29	.85	10
.40	28	.90	09
.45	27	.95	+ 06
— .50	— .0023	— .00	.0000

Column 14 contains the micrometer zero, or the mean value of the readings of the telescope micrometer, corrected for eccentricity and the excess of the circle reading above 200° 0′ 0″, or what it wants of that quantity, reduced to parts of a revolution, as explained under the heading Nadir Point.

Column 15 contains the readings of the barometer, (which is one of Newman's.)

Column 1 of the right-hand page contains "the numbers for reference," and is a repetition of column 2 of the left-hand page.

Column 2 contains the readings of the thermometer attached to the barometer.

Column 3 contains the reading of the external thermometer, which is placed on the north side of the observing room, outside.

The thermometer used was that which is designated as No. 2 in the Appendix of the Washington Observations, vol. I, (pages 45, 46,) from which the following corrections of its scale are quoted.

TABLE I.—REDUCTIONS OF SCALE READING TO NORMAL TEMPERATURE.

Therm. Scale.	No. 2.	Therm. Scale.	No. 2.	Therm. Scale.	No. 2.
°	°	°	°	°	°
5	— 0.21	48	+ 0.12	76	+ 0.09
10	.22	50	.13	78	.08
15	.17	52	.12	80	.06
20	.11	54	.11	82	.05
25	.06	56	.11	84	.03
30	— .02	58	.10	86	+ .02
32	.00	60	.10	88	— .01
34	+ .02	62	.10	90	.03
36	.04	64	.09	92	.03
38	.06	66	.09	94	.04
40	.08	68	.10	96	.04
42	.09	70	.12	98	.05
44	.10	72	.11	100	— 0.06
46	+ 0.11	74	+ 0.10		

Columns 4, 5, and 6 contain the readings of the several thermometers attached to the instrument, viz: one inside of the stone pier, and two upon the face of the pier—the one a few inches above, the other a few inches below the rim of the circle.

Column 7, headed "Corrections for Instrument," contains the value of $g - l$, where g represents the value of the mic. zero, and l the corrected mean reading of the telescope micrometer (reduced) reduced to minutes and seconds of arc, and for observations of the sun and moon the reduction μ, due to their change of declination in the siderial interval h from the meridian, of each observed contact of a limb obtained from the expressions,

$\mu = h \Delta' \delta$

$h = \tau - \alpha$ expressed in seconds of time;

$\Delta' \delta = \frac{\Delta \delta}{3610} = .000277 \, \Delta \delta$ for the sun;

$\Delta' \delta = \frac{\Delta \delta}{601.6} = .001662 \, \Delta \delta$ for the moon;

$\Delta \delta$ being the change of declination for the sun in one hour, or for the moon in ten minutes of mean time.

Column 8 contains, under the heading of "Corrections for Objects:"

1. The reduction for atmospheric refraction, computed from Bessel's tables, for the observed zenith distance and the readings of the barometer and the attached and external thermometers, (the latter corrected by the quantities in table I, page XVII.) An expansion of these tables is given in the Washington Observations, vol. 1, Appendix, pages 58—71. C' representing the mean circle reading of column 12, corrected for "Correction for Instrument," column 7, right-hand page; the observed zenith distance $z = C' - 20°$, and for stars whose north dec. is greater than the lat. $+ 20°$ $z = C' - 38°$. The correction for refraction, as applied to the circle readings, is affected with the sign of this remainder.

2. The reduction for parallax, in observations of the sun, moon, and planets, obtained from the formulas:

for the sun and planets, $\log p \text{ (in seconds)} = 0.93280 + \log \text{sine} (z' - 11' \, 14''.54) - \log d;$

for the moon, $\log \text{sine} \, p' = \log \text{sine} \, \pi + \log \text{sine} (z' - 11' \, 14''.54) + 9.9994302,$

or $\log p' \text{ (in seconds)} = \log \pi \text{ (in seconds)} + \log \text{sine} (z' - 11' \, 14''.54) + 9.9994302,$

$+ \log \frac{\text{sine}}{\text{arc}} \text{ (for } \pi) \log \frac{\text{arc}}{\text{sine}} \text{ (for } p')$*

$p = p' \mp \frac{1}{2} (p' \mp s) \text{ sine } p' \text{ sine } s,$†

the *upper* sign being adapted to an observation of the *upper* limb, the *lower* sign to an observation of the *lower* limb. In these expressions

z' represents the observed zenith distance, corrected for refraction;

d, the distance of the sun or planet from the earth;

π, the equatorial horizontal parallax of the moon, which for these observations has been interpolated from the Nautical Almanac, with second differences;

s, the moon's semi-diameter;

and p, the required reduction for parallax, which, as applied to the circle reading, is affected with the sign —.

Assuming from Bessel's most recent determination for the terrestrial spheroid, $\frac{1}{p} = .003343$,

and from Encke, the mean horizontal parallax of the sun, $P = 8''.5776$;

the reduction for the latitude, $38° \, 53' \, 39''.25$, is $- 11' \, 14''.54$,

$\log \rho = \log \frac{B}{A} = 9.9994302$, and

$\log \rho P = 0.93280$.

The reductions for refraction and parallax have been computed for the observed limbs of the sun or moon, or for each limb separately, when both have been observed.

3. A reduction on account of defective illumination, applied in some cases to observations of one of the limbs of the moon, Venus, or Mercury. Such cases, together with the corrections applied, are noted in the column of Remarks.

Let a represent the difference of the right ascensions of the moon or planet, and sun,

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* Tables IX and X, Wash. Obs., Vol. I, App. p. 74.

† Table XI, Wash. Ast. Obs., Vol. I, App. p. 74.

δ_s, the declination of the sun,

δ_m, the declination of the moon, or planet,

s, the apparent semi-diameter of the moon or planet, and

θ, the angle of position of the line joining the cusps;

then $$\tan\theta = \operatorname{cosec} a \cos\delta_m, \tan\delta_s - \cot a \sin\delta_m,$$

a negative value of which indicates a defective illumination of the *north* limb;

and, ϑ being taken numerically less than 90°, the correction for an observation of a *cusp* becomes

$$ds = s \operatorname{versin}\theta,$$

to be applied to the observation of the defective limb, so as to augment the measured diameter.

For Mercury, θ may readily be obtained from a celestial globe, by bringing the geocentric place of the planet to the zenith point of the globe, and passing the quadrant of altitude through the sun's place; ϑ is then the arc on the horizon intercepted between the quadrant of altitude and the east or west points; the *northern* or *southern* position of this arc indicating, respectively, a full illumination of the *north* or *south* limbs;

If we take i to represent the angular distance of the sun and earth, as viewed from the moon or planet, and make

$$\sin\theta' = \sin\quad \sin i,$$

the correction for an observation made on the *gibbous* portion of the disk becomes

$$ds = s \operatorname{versin}\theta'$$

For Mercury and Venus, ϑ' may be obtained more conveniently from a celestial globe, by bringing the planet's geocentric place to the south point of the horizon, and measuring the altitude or depression of its heliocentric place; an *elevation* indicating a defective illumination of the *north* limb, a *depression* a defective illumination of the *south* limb.

The proximity of the moon to the earth affords for that body a more convenient method of determining ϑ', by the substitution of geocentric for heliocentric places.

Making $$\tan\delta' = \tan\delta_m \cos a;$$
$$\sin\theta' = \sin(\delta_s - \delta') \cos\delta_m \sec\delta',$$

a *negative* value of which indicates a defective illumination of the *north* limb.

4. The reduction for semi-diameter, when only one limb of the sun, or a planet, or either limb of the moon has been observed, obtained from the expressions,

$$\log s = 2.9826782 - \log d \qquad \text{for the sun;}$$

$$\left.\begin{array}{l} \log \sin s = 9.4353665 + \log\sin\pi \\ \text{or } \log s = 9.4353665 + \log\pi + \log\frac{\sin}{\text{arc}}\ (\text{for } \pi) + \log\frac{\text{arc}}{\sin}\ (\text{for } s)\ * \end{array}\right\} \text{for the moon;}$$

and from the Nautical Almanac, for the planets.

Column 9 contains the corrected readings, obtained by applying the reductions in columns 7 and 8 to the mean of the circle readings in column 12 of the left-hand page.

For the sun, moon, and planets, when both limbs have been observed, the corrected reading for each limb is given. In such cases, half the difference of the two corrected readings constitute the observed semi-diameters in the column of remarks.

Column 10 contains the "Apparent Declinations," deduced from the observations. Representing by C'', the corrected reading in column 9; and assuming the latitude of the Observatory to be 38° 53′ 39″ .25 north; the apparent declination,

	° ′ ″			
$\delta =$	58 53 39.25 — C″,	for an observation	*direct*, *above* the pole,
$=$	—238 53 39.25 + C″,	" "	*direct*, *below* the pole,
$=$	—161 6 20.75 + C″,	" "	*by reflection*, *above* the pole,
$=$	341 6 20.75 — C″,	" "	*by reflection*, *below* the pole.

* Table IX, X, Wash. Ast. Obs., Vol. I, App. p. 74.

The declinations in this column for the sun, moon, and planets, are the declinations of the centres of these objects. Those of Polaris are the mean results of all the observations at the same culmination, combined by means of the formulas in §11, page xxvii, Wash. Ast. Obs., vol. II, Int.

Column 11 contains, for the fixed stars, the reductions to the mean equinox and ecliptic at the commencement of the year 1850, or at that moment of time when the sun's mean longitude will be 281°.* They have been computed by means of Bessel's formulas, with Struve's constant of aberration, and the co-efficients for nutation and precession in the Introduction to the Catalogue of the British Association.

The proper motions obtained from the catalogue in the Nautical Almanac for 1848, or from the Catalogue of the British Association, are included.

The reductions include, also, the terms depending on 2☾, and other minor terms, given in in Peters' "Numerus Constans Notationis."

Column 12 contains the initials of the names of the observers, Lieutenant Steedman and Professor Coffin; the former of whom was ordered on active duty early in the summer, and the latter was prevented from observing, except at intervals, by a disease of the eyes, which compelled him to cease from observing early in November.

The observations of 1850 were made by Professors Benedict and Hubbard.

Column 13 contains remarks made upon the observations quoted from the Observing books, and designated by the reference numbers; also upon the nadir points, among which are given half the estimated distances of Vertical wire IV from its reflected image, under the designation of apparent error of collimation.

MEAN DECLINATIONS, 1850.0.

Pages 399 to 403 contain the mean declinations for 1850.0 of the several stars, as determined from the observations with this instrument. They have been obtained by applying to the apparent declinations in column 10, right-hand page of the printed observations, the reductions to 1850.0 in column 11.

The brackets indicate the observations which, in general, for reasons stated in the notes to the printed observations, are regarded as deserving rejection.

The weights, *hh*, assigned to the several observations of Polaris, are obtained from the formulas in §§ 9 to 11, (Wash. Ast. Obs., vol. II, Int., page xvii.)

In the General Catalogue are given for each star the mean results of these declinations.

APPARENT DECLINATIONS AND VERTICAL SEMI-DIAMETERS OF THE SUN, MOON, AND PLANETS.

Pages 426 to 431 contain the apparent declinations of the centres of the sun and planets, transferred from column 10 of the right-hand page of the printed observations, (omitting those regarded as deserving rejection;) also the apparent declinations of the centre of the moon, carried out for each limb separately, when both have been observed. These are accompanied by the Washington mean time of observation, computed from the sidereal times.

The limb observed, when only one;

The seconds of declination interpolated with the long. $5^h\ 8^m\ 14.54^s$, from the Nautical Almanac, except those of Neptune, which have been taken from Mr. S. C. Walker's Ephemeris, published by the Smithsonian Institution;

The differences of the computed from the observed declinations, or "C — O;"

The reductions for defective illumination which have been applied to some of the observations of the moon.

There are also given;

The observed vertical semi-diameters, transferred from column of remarks, printed observations;

The computed semi-diameters, for the planets, taken from the Nautical Almanac; for the sun and moon computed by means of the formulas, page XIX;)

The difference of the computed from the observed semi-diameters, or "C — O."

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* 1850, January 1. 0*h*. 13 *m*. mean time, Washington.

From these last we have for the excess of the measured over the tabulated semi-diameters:

	″		
of the Sun,	2.07	from 14 observations by	Professor Coffin;
	2.38	4 "	Lieutenant Steedman;
Moon,	3.79	2 "	Professor Coffin;
Venus,	1.08	10 "	Professor Coffin;
Jupiter,	0.98	4 "	Professor Coffin;
Jupiter,	1.98	2 "	Lieutenant Steedman;

and from eight observations made in 1850, by Professor Benedict, the excess of the measured over the tabulated semi-diameter of Venus, 0″.48.

In observing these bodies it is easier to bring the edge than the middle of the wire into contact with the limb. A part of this excess is doubtless due to this mode of observing, and hence a deduction of 0″.8, the semi-diameter of a wire, may be allowed. These quantities are approximately the corrections which should be applied to declinations, which have been obtained from observations of one limb only; with the sign — for observations of the north and the sign + for those of the south limb.

THE MERIDIAN CIRCLE.

The Meridian Circle is represented in plates VII and VIII, Vol. I. The object-glass of the telescope has a clear aperture of 4.5 inchés and a focal distance of 58.2 inches. The circle is 30 inches in diameter, divided on the face into arcs of 3′ by heavy lines cut in silver. The subdivision is effected by four microscopes, each reading to single seconds. A detailed description of the whole instrument, and an account of some of its errors, is given in the preface to Vol. II, (pp. xxxvii, &c.)

Observations were made with the spirit-level at different times, with the instrument in reversed positions, all of which show the pivots to be of unequal thickness. (See vol. iii, p. xxvii, and vol. iv, pp. xxx, xxxi.) The result of the investigations concerning this error is the correction $\pm$ 0″.114 to be applied to the constant of inclination, as found from the level readings, in order to obtain the correct value of *b*, or inclination of axis to the plane of the horizon, the upper sign to be used for alidade west.

The error of figure of the pivots (vol. ii, pp. xxxix, &c.; vol. iv., pp. xxxi and xxxii,) being very small, it has not been found necessary to correct the observed transits on account of that error.

The system of transit and declination wires that were used during the latter part of the year 1848 remained in use up to the 31st of May of the year 1849. At this time it became evident that the transit wire A, as well as the fixed horizontal wire, had on several occasions become a little slack, especially when circumstances indicated a warm and humid atmosphere. In attempting to stretch out these delicate spider lines, the whole system of wires was broken out. A new set similar to the former was inserted on the 1st of June, but, these having been found likewise subject to occasional slackness, they were also removed, and on the 11th of June another set was inserted, consisting of one fixed horizontal —, seven micrometer —, and seven transit wires. These were used during the rest of the year 1849 and during the whole of the year 1850.

The observations for AR and Dec. were made as in former years, with the circle east, until the 28th of November, 1849, at which time the instrument was adjusted with the circle west. The transits and zenith distances were observed with the circle in this position during the rest of the year 1849, and during the whole of the year 1850.

From thirty-three complete transits of Polaris, of which fourteen were above the pole and nineteen below it, the following results for equatorial intervals for the year 1849 were obtained, and made use of in reducing the imperfect transits, viz:

1849.	Mean — A.	Mean — B.	Mean — C.	Mean — D.	Mean — E.	Mean — F.	Mean — G.
	s.	s.	s.	s.	s.	s.	s.
January 1 to May 31	+ 32.887	+ 21.795	+ 10.942	+ 0.152	— 10.940	— 21.947	— 32.889
May 31 to June 11	32.963	21.834	11.011	+ 0.021	11.035	21.819	32.974
June 11 to November 28	32.927	21.884	10.940	— 0.016	10.996	21.891	32.848
November 28 to December 31 . .	+ 32.829	+ 21.935	+ 10.992	— 0.019	— 10.960	— 21.893	— 32.884

During the year 1850, the electro-magnetic method of recording transits was introduced. The transits of circumpolar stars were observed by counting the beats of the armature of an electro-magnet placed near the observer, which armature moved synchronically with the pendulum of the sidereal clock or electro-chronograph situated in the west observing room. The transits of stars not very near the pole were recorded on a fillet of paper by the electro-magnetic recording -atus in the west room, and the fractional parts of a second were afterwards measured to hundredths by the aid of a f equal parts. This very accurate method of observing afforded the means of determining the equatorial intervals

from other stars than circumpolar ones. A combination of the equatorial intervals from a great number of transits, both circumpolar and non-circumpolar, resulted as follows:

1850.	Mean — A.	Mean — B.	Mean — C.	Mean — D.	Mean — E.	Mean — F.	Mean — G.
	s.	s.	s.	s.	s.	s.	s.
January 1 to May 1	+ 32.833	+ 21.930	+ 11.026	— 0.001	— 10.964	— 21.898	— 32.928
May 1 to June 3	32.832	21.931	11.098	+ 0.018	11.145	21.871	32.916
June 3 to September 6	32.891	21.998	11.073	0.003	10.914	21.876	33.184
September 6 to November 13	32.878	21.956	11.045	0.047	10.895	21.849	33.185
November 13 to December 31	+ 32.899	+ 21.958	+ 11.110	+ 0.079	— 10.863	— 21.837	— 33.364

The imperfect transits were reduced to the mean of wires by the formula $\sin r = \sin e . \sec \delta$ for circumpolar stars, and $r = e. \sec \delta$ for other stars, where e represents the equatorial reduction of a wire to the mean, r the reduction for the star observed, and δ the star's declination.

The striding level was used for finding the inclination of axis, and the constants obtained from the level readings, having been corrected on account of the inequality of pivots, were substituted for b in the formula $c = \frac{1}{2} s + b$, in which s represents the distance of the middle transit wire from its image reflected from a quicksilver surface, as observed with the aid of the micrometer and collimating eye-piece, in the manner described in the preface to Vol. II, p. LV. The values of c thus obtained having been reduced to the mean of wires by applying to them the proper equatorial intervals, Mean — D taken from the above table with a contrary sign, they were then corrected for diurnal aberration, and a mean for each period in which this final value of c seemed to have remained constant was taken as follows:

Dates.	c.
	s.
1849.—January 1 to February 13	— 0.694
February 13 to February 19	.480
February 19 to May 31	.196
June 1 to June 11	.355
June 11 to October 8	.314
October 8 to November 21	— .258
November 28 to December 5	+ .012
December 5 to December 31	+ .217
1850.—January 1 to May 20	+ 0.191
June 3 to June 24	.170
August 7 to September 25	.118
September 28 to November 9	.120
November 13 to December 13	+ .088

Before these results were adopted, another set was computed from the observed transits, and the two sets were then compared. Their close agreement showed that no great error existed in the above table. The formulas used in this computation were the following:

$$n + c = \frac{1}{2} \frac{(\alpha - \tau) - (\alpha + 12^h - \tau)}{\tan \delta}$$

$$c = \frac{(\alpha' - \tau') - (\alpha'' - \tau'') - (n + c)\ (\tan \delta' - \tan \delta'')}{(\sec \delta' - \tan \delta'') - (\sec \delta'' - \tan \delta'')}$$

The first of these formulas gave $n + c$ from the transits of circumpolar stars at the upper and lower culmination; and by substituting this in the second formula such value of c was found as satisfied the conditions of the transits of the circumpolar star α, δ, the equatorial star α', δ', and the south star α'', δ'', in which formulas τ, τ', τ'' denote the observed

times of transit corrected for clock rate, α, α', α'', the apparent right ascensions of the three stars, and δ, δ', δ'', their declinations respectively.

The values of c given above having been subjected to this test were then adopted, and a computation of $n+c$ was made for every series of observed transits in which a circumpolar star had been included, by one or more of the following formulas:

$$n+c=\frac{(\alpha-\tau)-(\alpha'-\tau')+c\,(\sec\delta'-\tan\delta')}{\tan\delta-\tan\delta'}$$

$$n+c=-\frac{(\alpha+12-\tau)-(\alpha'-\tau')+c\,(\sec\delta'-\tan\delta')}{\tan\delta+\tan\delta'}$$

$$n+c=\frac{(\alpha-\tau)-(\alpha+12-\tau)}{2\tan\delta}$$

$$n+c=\frac{(\alpha-\tau)-(\alpha'+12^{h}-\tau')-c\left\{(\sec\delta-\tan\delta)-c\,(\sec\delta'-\tan\delta')\right\}}{\tan\delta+\tan\delta'}$$

The first of these formulas is adapted to the transit of a circumpolar star α, δ, and of an equatorial star α', δ', both transits being above the pole; the second formula is for the transit of a circumpolar star at lower transit, and of an equatorial star at upper culmination; the third to the upper and next succeeding lower transit of a circumpolar star; the fourth to the upper culmination of a circumpolar star and lower transit of another circumpolar star. In these formulas α, δ, and τ represent respectively the right ascension, declination, and observed time of transit of the circumpolar star, and α', δ', τ' the same for the equatorial star, or the circumpolar star at lower transit, corrected for clock rate.

From all the values of $n+c$ so found a mean was adopted for the intervals during which it appeared to remain nearly constant, as follows, viz:

Dates.	$n+c$
	s.
1849.—Jan. 1 to Feb. 3	+ 0.158
Feb. 3 to Feb. 4	— .061
Feb. 15 to Feb. 19	— .340
Feb. 19 to Mar. 22	+ .186
Mar. 22 to April 6	.269
April 6 to April 30	.317
April 30 to May 30	.186
May 3 to June 4	+ .219
June 4 to June 11	— .216
June 11 to July 11	.196
July 11 to July 29	.334
July 29 to July 30	— .289
July 30 to Aug. 5	+ .098
Aug. 6 to Sept. 1	— .289
Sept. 1 to Oct. 8	.298
Oct. 8 to Nov. 21	— .278
Nov. 21 to Nov. 28	+ .034
Nov. 28 to Dec. 7	.889
Dec. 7 to Dec. 17	.763
Dec. 17 to Dec. 31	+ .827
1850.—Jan. 4 to Feb. 23	+ .764
Feb. 25 to May 20	.580
June 3 to June 24	.256
Aug. 7 to Sept. 25	.142
Sept. 28 to Oct. 16	.120
Oct. 28 to Dec. 13	+ .100

The frequent reversal of the instrument and the changing of the transit wires before mentioned, together with

alterations in the adjustments for level, azimuth, and collimation, all of which are noticed in the marginal remarks to the observations, sufficiently account for the frequent changes of the values of $n + c$ here exhibited.

Having now the adopted values of n, c, and b, the quantity m was computed by the formula $m = -n \tan \varphi + b \sec \varphi$, where φ represents the latitude of the Observatory.

The correction $m + n \tan \delta + c \sec \delta$ having been applied to all the observed transits of the fixed stars, the values of Δt were obtained by comparing the corrected transits of such fundamental stars as had been observed, with their apparent right ascensions deduced from the table of mean right ascensions found in the Nautical Almanac for 1850, by means of the formulas and tables given in the appendix to the Washington observations for 1847. The apparent right ascensions of all the fixed stars observed were then found by the formula

$$a = t + \Delta t + m + n \tan \delta + c \sec \delta.$$

By this formula were also found the right ascensions of the planets whose apparent diameters were too small to be observed accurately; but where transits of both limbs of a planet were observed, the right ascensions were found by reducing these transits to the mean wire, and substituting the mean of the two transits for t in the above formula. Where only one limb of a planet was observed, the right ascension was obtained from the above formula, with an additional term for sidereal time of semi-diameter passing the meridian, interpolated from the British Nautical Almanac.

The apparent right ascensions of the sun were obtained by the formulas

$$a = t + \Delta t \pm \frac{\mathrm{R} \sec \delta}{15\,(1 - \lambda)\, r} + f \frac{\sec \delta}{1 - \lambda} + m + n \tan \delta + c \sec \delta$$

$$\lambda = \frac{\cos \omega \sqrt{1 - e^2}}{r^2 \cos^2 \delta\, (\mathrm{T} + 1)}$$

where δ represents the sun's declination, R the radius of the solar disk at the earth's mean distance taken $= 16' \, 0''.9$, r the radius vector of the earth, $1 - \lambda$ the interval of seconds of true time corresponding to one second of sidereal time, f the equatorial reduction of the wire observed to the mean wire, ω the obliquity of the ecliptic, T the tropical year expressed in days, and e the eccentricity of the earth's orbit.

In every case where a complete transit of one limb had been observed the term $f \dfrac{\sec \delta}{1 - \lambda}$ was neglected, and where complete transits of both limbs had been observed the term $\dfrac{\mathrm{R} \sec \delta}{15\,(1 - \lambda)\, r}$ was likewise omitted, and the right ascension obtained from the remaining terms by substituting for t the mean of the times of transit of the first and second limbs.

The observed right ascensions of the moon were found by the formula

$$a = t + \Delta t \pm \frac{h}{15\,(1 - \lambda) \cos \delta} + f \frac{1 - \rho \sin \pi \cos (\varphi' - \delta)}{(1 - \lambda) \cos \delta}$$

$$+ \frac{1 - \rho \sin \pi \cos \varphi' \sec \delta'}{1 - \lambda} (m + n \tan \delta' + c \sec \delta')$$

where φ' represents the geocentric latitude of the Observatory, assumed $= + 38^\circ \, 42' \, 25''$; ρ the earth's radius for the same place; δ and δ' the moon's true and apparent declinations respectively; π the moon's equatorial horizontal parallax; h the geocentric radius of the moon's disk, expressed in seconds of arc; f the equatorial reduction of the wire observed to the mean wire expressed in time, and λ the change of the moon's right ascension in one second of sidereal time.

The term $\dfrac{h}{15\,(1 - \lambda) \cos \delta}$ was obtained by interpolating for the longitude of Washington the sidereal time of the moon's semi-diameter passing the meridian, as given in the British Nautical Almanac for the meridian of Greenwich.

The term $f \dfrac{1 - \rho \sin \pi \cos (\varphi' - \delta)}{(1 - \lambda) \cos \delta}$ was neglected in all cases where complete transits of the limb over the seven wires had been observed.

The micrometer wires of the diaphragm are designated by the numbers 1, 2, 3, 4, 5, 6, 7, of which 1 with the circle E is the most southern or uppermost in the field, the observer looking south. The distances between these wires have been determined by means of the collimating eye-piece and circle readings, each wire having been made to coincide with its own image. The mean of all the determinations gives:

	4—1	4—2	4—3	4—5	4—6	4—7
1849.—Jan. 1 to Feb. 1	— 20 27.16	— 14 38.50	— 5 52.45	+ 5 48.33	+ 14 29.13	+ 20 23.08
Feb. 1 to Mar. 1	20 26.00	14 36.10	5 52.04	5 49.45	14 30.45	20 23.46
Mar. 1 to June 11	20 24.84	14 33.71	5 51.63	5 50.56	14 31.76	20 23.73
June 18 to Dec. 31	— 20 24.54	— 14 33.72	— 5 46.44	+ 5 49.46	+ 14 37.04	+ 20 23.86
1850.—Jan. 18 to May 1	— 20 24.54	— 14 33.72	— 5 46.44	+ 5 49.46	+ 14 37.04	+ 20 23.86
May 1 to Oct. 1	20 24.94	14 34.35	5 47.12	5 50.25	14 36.65	20 23.34
Oct. 1 to Dec. 31	— 20 25.34	— 14 34.97	— 5 47.79	+ 5 51.04	+ 14 36.26	+ 20 22.81

The correction for runs, when required, has been determined in the same manner as for the mural circle.

The nadir points on the circle were determined by the collimating eye-piece, the middle micrometer wire having been used for this purpose, as well as for observing for declination generally, instead of the fixed horizontal wire. This method of observing consists in setting the circle so that a division mark may be exactly between the wires of one of the microscopes adjusted to zero; and then moving the micrometer-screw, if observing over the quicksilver, until the micrometer wire and its image coincide, or, if observing a star, until the wire bisects the star. In this mode of observing, the runs of microscopes are in all cases only a few seconds. The details of the observations for nadir point accompany the observations themselves, and occupy part of the pages containing the latter.

The refractions have been computed by Lieutenant Worden from the tables published in the appendix to Vol. I, (pages 59 to 71.) Another compuation of the same was made by Lieutenant Selden. These results were compared and revised by Professor Major.

The horizontal parallaxes of the sun, moon, and planets, were computed from their tabular distances from the earth as given in the Nautical Almanac.

The corrections for micrometer reading, zenith point, refraction, and, where necessary, for runs, parallax and semi-diameter having been duly applied to the mean of the four microscope readings; the true geocentric zenith distance was obtained, counted in accordance with the numbering of the graduations on the circle from the zenith towards the north when the circle was east of the piers, but towards the south when west, the southern distances in the former case being given as less than 360° or negative, and in the latter as less than 90° or positive. The addition of the latitude, assumed as 38° 53′ 39″.25, gave the required declination of the object.

The reduction of the stars' apparent places to the adopted mean equinox of 1850.0 were computed by Lieutenants Haggerty and Ammen, by the help of tables given in the Appendix C, Volume III. These computations were revised by Professor Major.

EXPLANATION TO THE PRINTED OBSERVATIONS.

On the left-hand page—

Column 1 contains the date, the day being always supposed to commence with the transit of the sun.

Column 2 contains the number for reference to the notes at the foot of the page.

Column 3 contains the designation of the object observed. Stars not belonging to the Nautical Almanac list are denoted, in the order of preference, by their letter and constellation, their constellation and number in the Catalogue of the British Association; the hour and number in Weisse's "Catalogus Stellarum," &c; the "Zone" of Bessel, in which the star has been given; the number in the reduced Catalogue of Lalande; or, finally, by the term Anonymous.

Columns 4–10 contain the observed times of transit over the vertical wires of the diaphragm.

Column 11 shows the mean of the wires observed; the reduction to the mean of the seven, in the case of broken transits being given in another place.

Columns 12–15 give the readings of the four microscopes, with the degrees and minutes shown by the first, or microscope A.

Column 16 contains the mean of the readings.

Columns 17–18 contain the readings of the micrometer.

Columns 19–21 give the readings of the barometer, and attached and exterior thermometers; the former in inches, the two latter in degrees of Fahrenheit's scale.

On the right-hand page—

Column 1 is a repetition of column 2, on the preceding page.

Columns 2–3 show the corrections to the mean of observed transits as given on the preceding page. The first is the sum of the corrections for broken transits, for instrumental errors, and for semi-diameter; the latter being separately in the small table in the margin of this page; the second is the correction on account of error of clock, taken from the small table in the margin of the left-hand page, where it is given for a certain epoch at the date of observation, with the hourly rate.

Columns 4–5 contain the corrections to be applied to the circle readings; the first, for the instrument, being the sum of the corrections for runs, micrometer reading, and reduction to the meridian; the second, for the object, being the sum of the corrections for refraction, semi-diameter and parallax.

Column 6 contains the readings thus corrected.

Column 7 shows the micrometer reading when, the micrometer wire coinciding with its image reflected from the quicksilver surface, the mean of microscope readings is 0′ 0″, deduced from the observations for nadir point.

Columns 8–9 contain the observed apparent AR. and Dec.; the first obtained by adding the numbers 2–3 of this page to the numbers in column 11 of the preceding; the second by subtracting the equatorial point 321° 6′ 20″.75 from the numbers in column 6 of this page, when the circle was east of the piers, or by subtracting these numbers from the equatorial point 38° 53′ 39″.25 when the circle was west of the piers.

Columns 10–11 contain the reductions of the stars to the mean equinox of 1850.0.

The last five columns contain the details of the determinations of the nadir point, giving, with the date and hour, the circle readings, the mean of each set, the mean of the micrometer readings for the wire at coincidence with its image, and the number of readings and coincidences.

The margin of the left-hand page contains, besides the quantities already explained, the adopted error of runs, and the observed coincidence of mic. wire 4 with the fixed horizontal wire, with such notes and corrections as have occurred during the reductions.

In the margin of the right-hand page are given the corrections in AR. for semi-diameter, the observed vertical semi-diameters, and the corrections that have been applied to the circle readings for defective illumination of the moon's limb. There are also given here the times corresponding to the micrometer observations of the moon, of Polaris, or of other objects observed at a distance from the middle transit wire.

The mean places of the stars for 1850.0, obtained by adding to the apparent places the reductions in columns 10–11, have been collected together on pages 404 to 415. The arithmetical mean of the determinations here given, excluding a few cases where the numbers are enclosed in brackets, were then taken and inserted in the General Catalogue at the end of the volume. The apparent places of the sun, moon, and planets are collected on pages 430–435, and compared with the tabular places as given by the Nautical Almanac. The quantity C—O is the excess of the computed over the observed place. The computed semi-diameters in AR. are the quantities used in the reductions, and already given in the margin of the printed observations.

PRIME VERTICAL TRANSIT INSTRUMENT.

Owing to the failure of health of the observer and the pressure of other duties but few observations were made with this instrument in 1849 and 1850.

The system of wires introduced in September, 1847, remained unchanged until October, 1850, when the diaphragm was taken out, and some new wires, with closer intervals, were introduced to facilitate observations by telegraph. In the new system there were 29 vertical wires, of which the 8 just introduced were arranged, 4 on each side of the centre, and with half the previously closest intervals. The observations being always symmetrical, no determination of the exact values of the intervals was made.

The value of one revolution of the micrometer wire was assumed the same as in 1848, viz: 26″.047.

The level-tube, No. 2558, continued in use until May 22, when the level-tube originally belonging to the instrument was substituted for it, and remained in use until September 18, when it was removed again, and the former tube restored.

The formulas for the reduction of observations are as follow:

Denoting by t and t' the observed times of transit in the E. over any given wire in the two positions of the instrument, (N. and S.,) and by $t_{\prime}'$ and t' the similar transits in the W., and making

$$s = \tfrac{1}{4} \{ (t_{\prime}' - t) + (t_{\prime} - t') \}$$
$$u = \tfrac{1}{4} \{ (t_{\prime}' - t) - (t_{\prime} - t') \}$$

and denoting, moreover, by δ and φ the declination and the sum of the latitude and level-correction; then

$$\tan \delta_0 = \tan \varphi \cos s . \cos u.$$

The correction b, on account of error of level, for a star in the zenith, is given immediately by the level readings; for any other star it is given by the formula

$$\Delta\delta_0 = b \sin 2\,\delta \operatorname{cosec} 2\,\varphi.$$

The computation of δ_0 is performed independently for each wire, and the mean of the results corrected for level-error given in the pages of the printed observations.

For observations of stars very near the zenith, with the micrometer, we have

$$\delta = \varphi + b - \mathrm{C} + m - \text{Red. to vertical} + \text{coll}^{\text{n}}. \text{ (Tel. S.)}$$
$$\delta = \varphi + b + \mathrm{C} - m - \text{Red. to vertical} - \text{coll}^{\text{n}}. \text{ (Tel. N.)}$$

where, besides the symbols already used, C denotes the micrometer reading at coincidence with the middle wire, and m the micrometer reading for the star.

The reduction to the vertical is given in parts of a revolution of the micrometer screw by the formula

$$m.\ k.\ \sin^2 \tfrac{1}{2}\, t$$

where

$$m = 1^{\mathrm{r}} = 26''.047$$
$$k = [5.6154551].\ \cos \delta \sin \varphi.$$
$$t = \text{hour angle.}$$

The time of the star's meridian passage is easily found by taking the half sum of corresponding transits in the prime vertical. In a complete observation there are seven of these determinations with telescope N, and seven with telescope S. The mean is entered in the pages of printed observations. If the level indicate a change of position of the axis in the interval between E. and W. transits, a correction should be applied to the mean, computed by the formula

$$d\,\mathrm{T} = \frac{\mathrm{I_E} - \mathrm{I_W}}{30 \sqrt{(\sin (\varphi + \delta) . \sin (\varphi - \delta)}} . \sin \delta \operatorname{cosec} \varphi.$$

The clock-correction being now also applied to the mean of wires, the error of the axis in azimuth may be obtained by comparing this corrected time with the tabular AR. of the star.

In 1849 and 1850, however, this has not been practicable, for the want of the necessary observations, and the computations have therefore been confined to the determination of declinations only.

The reductions to the mean equinox of 1850.0 were computed by help of the "Independent Constants" given in the Appendix to Vol. III.

All the computations were made in duplicate by Lieutenant John L. Worden and Professor Hubbard.

EXPLANATION OF THE PRINTED OBSERVATIONS.

On the left-hand page:

Column 1 contains the date, the day always commencing with the transit of the sun, and the date being that of the meridian passage of the star.

Column 2 contains the reference number for the notes.

Column 3 contains the designation of the objects observed, the names being given in the order of preference from the Nautical Almanac, the Catalogue of the British Association, or the reduced Catalogue of Lalande, the latter being chosen as furnishing a more definite reference than Bessel's Zones. When these authorities failed to furnish a name, the star is marked Anonymous.

Column 4 indicates the vertical (E. or W.) in which the observation was made, the order being always E. W.

Columns 5–13 show the position of the telescope with reference to the pier, the instrument being always reversed between the transits given in columns 12 and 14.

Columns 6 . . . 20 contain the recorded times of transit over the vertical wires. When, as often happens with this instrument, any wires have been omitted or lost in either of the four sets of transits, the three corresponding observations have been suppressed as of no value.

On the right-hand page:

Column 1 is a repetition of column 2 of the preceding page.

Columns 2 and 3 contain the means of four readings of the level in the two positions of the telescope, (N. and S.)

Column 4 shows the excess of the numbers in column 3 over those in column 2.

Column 5 contains the mean of the two numbers in column 4, multiplied by the value of one division of the level, and, where necessary, by the factor $\sin 2\,\delta \operatorname{cosec} 2\,\varphi$.

Column 6 contains the mean of observed transits, the first reading of wire A. in the E. being combined with the last of the same wire in the W., and similarly with the other wires. In a complete observation, therefore, the quantities in this column are the means of fourteen observations.

Column 7 gives the apparent Dec. computed from the intervals of transit in the manner described above.

Column 8 contains the reductions to the mean equinox of 1850.0.

Column 9 gives the magnitude of the star.

Column 10 gives the initial of the observer's name, H. denoting Professor Hubbard.

Column 11 is a repetition of column 3 of the preceding page.

The notes entered in the observing book are given in the margins.

The mean Dec. of all the stars observed have been collected together in pages 416 and 417, and the mean results of each star embodied in the General Catalogue at the end of the volume.

THE EQUATORIAL.

The Equatorial, by Merz and Mahler, of which a representation has been given in the first volume of these observations, is of the same dimension and construction as the instruments at Dorpat and Berlin. The object-glass has a clear aperture of 9.65 inches, and a focal length of 14.65 feet.

The diaphragm of the micometer consists of two pieces—one moved by a plain screw carrying three transit wires, and one declination wire in the centre of the aperture. The other piece, moved by the micrometer-screw, carries three declination wires, at intervals from each other of nearly thirty revolutions of the screw.

The transit wires are denoted by the letters A, B, C. In the record of transits, A always indicates the wire first passed by the star. The equatorial intervals (A being the wire nearest the vernier of the position-circle marked II,) are as follows:

B—A	C—B
s.	*s.*
12.30	12.33

The declination wires are indicated by the numbers 1, 2, 3; the wire 1 being nearest to the head of the micrometer-screw. The intervals of these wires were as follows:

For 1849.

	r.
2—1	30.151
3—2	29.913
3—1	60.064

For 1850.

	s.
2—1	30.167
3—2	29.912
3—1	60.080

The value of a revolution of the micrometer-screw has been determined by transits of stars within 20 degrees of the Pole and from distances between well known stars of the Pleiades; also by clamping the instrument in the equator and meridian, and observing with the chronograph, and for several successive hours, all stars passing near the central wire. A determination not differing much from that observed by these several methods has also been made by measuring in revolutions the length of the columns of the peristyle of the dome of the Capitol; the interval used being 8.245 metres, and the distance 3716.79 metres; the one value having been taken from the design of the architect, and the other from the triangulations of the survey of the coast. The observations made in each year for this purpose are given among the current work of the year; but the final reductions having been made at a later period, the value used has been a result from all the determinations discussed up to the time of reduction. For 1849 the value used was 15″.372; for 1850, 15″.370.

The objects observed in 1849 were: The comet 1849.III, (Schweitzer,) the planet Mars, the asteroids Metis, Astræa, Ceres, and Vesta. In 1850 there were observed the planets Mars and Venus, the asteroids Metis, Astræa, Hebe, Hygea, Parthenope, Flora, Victoria, and Egeria; also the comets 1850.I, 1850.II; also a star designated by the letter k, observed as a star of comparison with Hygea, now missing, and supposed to have been a planet. In each year there were also observed occultations of stars by the moon. The observations, excepting only those of the 5th of January, 1849, have been made by Mr. Ferguson, who also computed the work and prepared it for publication.

In these observations, column 1 contains the date; column 2, the name of the object; columns 3, 4, and 5, the seconds of the transit; column 6, the mean of these transits, with the hour and minute prefixed; column 7, the micrometer reading; Columns 8 and 9, the observed differences in α and δ, the first expressed in minutes and seconds, the second in revolutions and decimals; column 10, or the remainder of the page, contains—

The correction of the chronometer;

The apparent place of the comparison-star at the time of observation;

The mean of the true times (either sidereal or mean) of observation;

The mean of the observed difference of α and δ between the object compared and the star of comparison; and

The correction for differential refraction ($\Delta\ \rho$) and the correction for parallax (p.)

The results of these observations contain the mean time at Washington of the observation, and the observed place of the body; also a table of the mean places for 1850.0 of the stars of comparison, with the authorities from which they have been derived.

OBSERVATIONS

WITH THE

WEST TRANSIT INSTRUMENT,

1849.

NATIONAL OBSERVATORY.

[D]ATE.	No. for ref.	OBJECT OBSERVED.	Times of transit over wires: I.	II.	III.	IV.	V.	VI.	VII	Mean.	Corrections for—: Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer
[1]849.			s.	s.	s.	s	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
[Apr]il 30	1	Dec. — 3° 51′ - -	--	47. 2	59. 5	12. 2	--	--	--	25 59. 63	+ 11. 80	- - -	+ 7. 75	10 26 19. 18	+ 1. 92	B.
	2	Dec. — 3° 51′ - -	--	36. 0	48. 5	1. 0	--	--	--	27 48. 50	+ 11. 80	- - -	. 76	10 28 8. 06	1. 91	
	3	Dec. — 3° 51′ - -	--	--	33. 0	45. 5	58. 0	10. 3	--	28 51. 70	— 7. 00	- - -	. 76	10 28 52. 46	1. 90	
	4	Dec. — 0° 46′ - -	15. 3	28. 0	40. 4	53. 0	5. 2	17. 7	30. 3	44 52. 84	0. 67	- - -	. 76	10 44 59. 93	1. 88	
	5	Dec. — 0° 46′ - -	--	--	--	51. 0	3. 5	16. 0	28. 5	46 9. 75	19. 44	- - -	. 77	10 45 58. 08	1. 87	
	6	Dec. — 0° 46′ - -	--	--	--	45. 3	58. 0	10. 3	23. 0	47 4. 15	19. 44	- - -	. 77	10 46 52. 48	1. 87	
	7	Dec. — 0° 46′ - -	--	--	5. 0	17. 5	30. 0	42. 3	55. 0	48 29. 96	13. 18	- - -	. 77	10 48 24. 55	1. 86	
	8	δ Leonis - - - -	17. 6	31. 0	44. 2	57. 8	11. 1	24. 9	37. 9	5 57. 79	0. 21	- - -	. 78	11 6 5. 36	2. 09	
	9	δ Hydræ et Crateris -	3. 5	16. 3	29. 3	42. 3	55. 0	8. 0	21. 0	11 42. 20	0. 94	- - -	. 78	11 11 49. 04	1. 55	
	10	β Leonis - - - -	36. 0	49. 0	2. 0	15. 0	28. 0	41. 0	54. 0	41 15. 00	0. 34	- - -	. 80	11 41 22. 46	1. 78	
	11	β Corvi - - - - -	42. 3	56. 0	9. 3	23. 0	36. 5	50. 1	3. 7	26 22. 99	1. 13	- - -	. 83	12 26 29. 69	1. 21	
	12	Polaris, S. P. - -	0. 0	0. 0	1. 0	0. 0	0. 0	57. 0	58. 0	4 59. 43	45. 82	- - -	. 86	13 4 21. 47	37. 51	
	13	α Virginis - - - -	31. 2	44. 1	57. 0	9. 6	22. 1	35. 0	47. 8	17 9. 54	0. 87	- - -	. 87	13 17 16. 54	1. 28	
	14	η Bootis - - - - -	44. 0	57. 0	10. 2	23. 5	37. 0	50. 0	3. 2	47 23. 56	0. 26	- - -	. 89	13 47 31. 19	1. 22	
	15	α Bootis - - - - -	0. 5	14. 0	27. 4	40. 5	53. 2	7. 0	20. 3	8 40. 41	0. 24	- - -	. 90	14 8 48. 07	1. 09	
	16	ε Bootis - - - - -	35. 0	49. 0	3. 3	17. 5	31. 2	45. 7	0. 0	38 17. 39	0. 05	- - -	. 92	14 38 25. 26	0. 93	
	17	α² Libræ - - - - -	48. 2	1. 0	14. 0	27. 0	40. 0	53. 0	6. 0	42 27. 03	— 0. 97	- - -	. 92	14 42 33. 98	+ 1. 26	
	18	β Ursæ Minoris - -	41. 0	29. 0	16. 5	4. 0	52. 0	39. 0	27. 0	51 4. 07	+ 3. 65	- - -	. 92	14 51 15. 64	— 3. 60	
	19	β Libræ - - - - -	10. 1	22. 8	35. 5	48. 0	0. 8	13. 2	26. 0	8 48. 06	— 0. 84	- - -	7. 94	15 8 55. 16	+ 1. 28	
[Ma]y 2	20	Dec — 3° 50′ - -	6. 2	19. 0	31. 3	43. 6	--	--	--	28 25. 03	+ 18. 07	- - -	9. 84	10 28 52. 94	1. 94	
	21	Dec. — 3° 50′ - -	--	--	19. 3	32. 0	45. 0	57. 2	10. 0	29 44. 70	— 13. 27	- - -	. 85	10 29 41. 28	1. 93	
	22	Dec. -- 3° 37′ - -	38. 4	51. 1	3. 6	16. 2	29. 0	41. 3	53. 7	35 16. 19	0. 73	- - -	. 86	10 35 25. 32	1. 91	
	23	Dec. — 0° 45′ - -	13. 5	26. 1	38. 3	51. 0	3. 5	15. 5	28. 5	44 50. 91	0. 67	- - -	. 87	10 45 0. 11	1. 91	
	24	Dec. — 0° 45′ - -	6. 0	18. 4	30. 9	43. 5	56. 0	8. 8	21. 3	46 43. 56	0. 67	- - -	. 87	10 46 52. 76	1. 90	
	25	Dec. — 0° 45′ - -	--	50. 3	3. 0	15. 5	28. 2	40. 5	53. 2	48 21. 78	6. 93	- - -	. 87	10 48 24. 72	1. 89	
	26	χ Leonis - - - -	27. 5	40. 0	52. 3	5. 2	17. 3	30. 3	43. 3	57 5. 13	0. 49	- - -	. 88	10 57 14. 52	1. 96	
	27	δ Leonis - - - -	15. 2	29. 0	42. 3	55. 5	9. 0	22. 5	36. 0	5 55. 64	0. 21	- - -	. 89	11 6 5. 32	2. 09	
	28	σ Leonis - - - -	34. 9	47. 5	0. 0	12. 7	25. 2	38. 0	50. 5	13 12. 69	0. 51	- - -	. 90	11 13 22 08	1. 86	
	29	Moon, 1st L. - -	15. 0	27. 3	40. 5	53. 2	6. 2	18. 7	31. 4	41 53. 19	0. 62	+ 63. 21	. 94	11 43 5. 72	- - -	
	30	η Virginis - - - -	25. 3	38. 0	50. 5	3. 1	15. 5	28. 0	40. 6	12 3. 00	0. 66	- - -	. 97	12 12 12. 31	1. 52	
	31	β Corvi - - - - -	40. 2	54. 0	7. 2	21. 0	34. 3	48. 0	1. 5	26 20. 89	1. 13	- - -	9. 99	12 26 29. 75	1. 20	
	32	Polaris, S. P. - -	2. 7	3. 0	2. 7	59. 7	1. 0	57. 0	59. 5	5 0. 80	45. 82	- - -	10. 04	13 4 25. 02	36. 85	
	33	α Virginis - - - -	29. 1	42. 0	54. 5	7. 2	20. 0	32. 8	45. 2	17 7. 26	0. 87	- - -	. 05	13 17 16. 44	1. 28	
	34†	Dec. + 22° 40′ -	40. 5	54. 0	7. 6	21. 5	35. 0	48. 5	2. 0	41 21. 30	0. 17	- - -	. 08	13 41 31. 21	1. 14	
	35	Dec. + 22° 40′ -	--	--	51. 5	5. 0	18. 4	32. 0	45. 8	43 18. 54	13. 72	- - -	. 08	13 43 14. 90	1. 14	
	36	Dec. + 23° 56′ -	39. 2	53. 0	6. 5	20. 2	34. 0	47. 5	1. 5	54 20. 27	0. 15	- - -	. 10	13 54 30. 22	1. 13	
	37	Dec. + 23° 56′ -	1. 3	15. 0	--	42. 5	56. 0	9. 5	23. 5	58 44. 63	2. 43	- - -	. 10	13 58 52. 30	1. 10	
	38	α Bootis - - - - -	58. 2	11. 5	25. 0	38. 2	51. 3	5. 0	18. 0	8 38. 17	0. 24	- - -	10. 11	14 8 48. 04	1. 08	
3	39†	η Bootis - - - - -	40. 1	53. 4	6. 7	19. 8	33. 1	46. 3	59. 6	47 19. 85	0. 26	- - -	11. 69	13 47 31. 28	1. 19	K.
	40	α Bootis - - - - -	56. 9	10. 0	23. 2	36. 5	49. 9	3. 2	16. 5	8 36. 60	0. 24	- - -	. 71	14 8 48. 07	1. 08	
	41	ε Bootis - - - - -	31. 0	45. 2	59. 4	13. 6	27. 8	41. 9	55. 9	38 13. 54	0. 05	- - -	. 74	14 38 25. 23	0. 89	
	42	α² Libræ - - - - -	44. 3	57. 3	10. 2	23. 4	36. 3	49. 3	2. 2	42 23. 29	0. 97	- - -	11. 75	14 42 34. 07	1. 23	
4	43	Sun, 1st L. - - -	28. 3	41. 3	54. 1	7. 2	20. 0	33. 0	46. 2	45 7. 16	- - -	- - -	- -	- - -	- - -	B
	44	Sun, 2d L. - - -	40. 5	53. 4	6. 4	19. 6	32. 5	46. 0	59. 2	47 19. 66	- - -	- - -	- -	- - -	- - -	
	45	Venus, 1st L. - -	54. 5	8. 3	22. 0	35. 6	49. 4	3. 0	16. 5	31 35. 61	- - -	- - -	- -	- - -	- - -	
9	46	τ Leonis - - - -	16. 6	29. 2	41. 5	54. 3	6. 8	19. 2	31. 7	19 54. 19	0. 66	- - -	17. 91	11 20 11. 44	1. 88	K.
	47	Crateris, (3925) - -	13. 7	26. 1	38. 9	51. 4	3. 8	16. 6	29. 2	24 51. 39	0. 91	- - -	. 91	11 25 8. 39	1. 70	
	48	ν Leonis - - - -	--	--	44. 4	57. 1	9. 6	22. 1	34. 4	29 9. 52	13. 26	- - -	. 91	11 29 14. 17	1. 79	
	49	ζ Crateris - - - -	12. 1	25. 2	38. 2	51. 4	4. 6	17. 7	30. 8	36 51. 43	1. 17	- - -	. 92	11 37 8. 18	1 50	
	50	β Leonis - - - -	25. 8	38. 8	51. 8	4. 7	17. 7	30. 7	43. 7	41 4. 74	0. 37	- - -	. 92	11 41 22. 29	1. 86	
	51	β Corvi - - - - -	32. 4	46. 0	59. 4	13. 0	26. 4	40. 2	53. 8	26 13. 03	0. 90	- - -	. 95	12 26 30 08	1. 25	
	52	Virginis, (4286) -	5. 2	18. 2	30. 8	43. 3	55. 9	8. 6	21. 4	37 43. 34	— 0. 55	- - -	+ 17. 96	12 38 0. 75	+ 1. 53	

34 to 37. Just visible; magnitude uncertain; hazy.
39. Very steady through the night.

Date.	Clock. At 13h.	Hourly rate.	Value of m.	Value of n.	Value of c.
	s.	s.	s.	s.	s.
April 30	s 7. 85	l 0. 039	— . 687	+ 1. 148	+ . 031
May 2	10. 03	. 072			
3	11. 63	. 067			
9	s 17. 97	l . 038	— . 779	+ 1. 350	+ . 031

OBSERVATIONS

WITH THE

WEST TRANSIT INSTRUMENT,

1850.

NATIONAL OBSERVATORY.

[D]ATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer
850.			s.	s.	s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
b. 11	1	ι Ursæ Majoris	18.00	37.20	56.00	14.70	33.80	52.75	11.40	48 14.84	+ 0.04	- - -	+ 41.33	8 48 56.21	− 1.26	B.
	2	α Hydræ	55.00	7.70	20.10	32.80	45.60	58.30	11.00	19 32.93	− 0.13	- - -	41.29	9 20 14.09	1.15	
12	3	α¹ Geminorum	--	--	7.00	22.07	36.71	--	--	24 21.93	0.03	- - -	39.97	7 25 1.87	0.92	K.
	4	α Canis Minoris	--	23.02	34.87	47.91	0.78	13.06	--	30 47.93	0.10	- - -	39.96	7 31 27.79	0.89	
	5	ε Hydræ	--	45.71	58.31	11.00	23.48	36.00	--	38 10.90	0.10	- - -	39.86	8 38 50.66	1.01	
	6	ε Leonis	--	13.39	27.14	41.00	54.76	8.25	--	36 40.91	0.06	- - -	39.78	9 37 20.63	1.00	
	7	α Leonis	--	18.45	31.16	44.12	56.75	9.66	--	59 44.03	0.08	- - -	39.75	10 0 23.70	0.99	
16	8	α Tauri	--	22.00	35.00	48.00	1.00	14.17	--	26 48.03	0.02	- - -	31.27	4 27 19.22	0.11	
	9	β Tauri	--	49.68	3.82	17.79	32.19	46.43	--	16 17.98	0.04	- - -	31.19	5 16 49.13	0.40	
	10	Mars, 1st L.	--	--	--	53.71	7.96	21.78	--	20 7.82	} 13.98	(0 30)	31.19	5 20 25.33	- - -	
	11	Mars, 2d L.	--	--	--	54.66	8.38	22.43	--	20 8.42						
	12	α Orionis	--	7.25	19.96	32.66	45.14	57.67	--	46 32.54	0.10	- - -	31.14	5 47 3.58	0.47	
	13	α Canis Majoris	--	36.19	49.03	--	15.25	28.25	--	38 2.18	0.14	- - -	31.07	6 38 33.11	0.78	
19	14	β Orionis	8.00	20.65	33.25	45.70	58.70	11.35	24.00	6 45.95	0.13	- - -	34.24	5 7 20.06	0.23	B.
	15	β Tauri	32.40	46.50	0.40	15.00	28.95	43.50	57.70	16 14.92	0.04	- - -	34.21	5 16 49.09	0.35	
	16	δ Orionis	9.40	21.80	34.35	47.20	59.40	11.90	24.50	23 46.94	0.11	- - -	34.19	5 24 21.02	0.32	
	17	ε Orionis	25.00	37.40	50.00	2.50	15.00	27.50	40.00	28 2.49	0.11	- - -	34.17	5 28 36.55	0.34	
	18	α Orionis	51.70	4.00	17.00	29.55	42.00	54.60	7.30	46 29.45	0.10	- - -	34.12	5 47 3.47	0.43	
	19	δ Geminorum	55.90	9.50	23.25	36.65	50.20	3.50	17.25	10 36.61	0.06	- - -	33.88	7 11 10.43	0.79	
	20	α² Geminorum	44.10	58.50	13.80	28.40	43.20	58.00	12.80	24 28.40	0.03	- - -	33.85	7 25 2.22	0.88	
	21	α Canis Minoris	16.25	28.80	41.30	54.00	6.60	19.00	31.80	30 53.96	0.10	- - -	33.83	7 31 27.69	0.85	
	22	β Geminorum	52.10	6.30	20.80	34.90	49.20	3.30	17.50	35 34.87	0.04	- - -	33.82	7 36 8.65	0.88	
	23	ε Hydræ	39.40	52.00	4.40	17.25	30.00	42.40	55.25	38 17.24	− 0.10	- - -	33.65	8 38 50.79	1.00	
	24	ι Ursæ Majoris	25.60	45.00	4.00	22.60	41.45	0.20	19.40	49 22.61	+ 0.04	- - -	33.61	8 48 56.26	1.25	
	25	ε Leonis	6.05	20.00	33.50	47.40	1.00	14.60	28.50	36 47.29	− 0.06	- - -	33.48	9 37 20.71	1.05	
	26	α Leonis	11.90	24.80	37.55	50.40	3.00	16.00	28.90	59 50.36	− 0.08	- - -	33.41	10 0 23.69	1.03	
	27	α Ursæ Majoris	32.50	0.00	27.00	54.30	21.00	48.50	15.50	53 54.11	+ 0.14	- - -	33.36	10 54 27.61	1.60	
	28	δ Leonis	55.00	8.30	21.80	35.30	48.90	2.00	15.65	5 35.28	− 0.07	- - -	33.33	11 6 8.54	0.96	
	29	δ Hydræ et Crateris	40.00	53.00	5.90	18.90	31.70	44.60	57.50	11 18.80	0.13	- - -	33.20	11 11 51.87	1.21	
	30	Jupiter, 1st L.	20.65	33.30	48.90	58.45	11.00	23.40	36.00	25 58.38	} 0.10	(1.48)	33.17	11 26 32.93	- - -	
	31	Jupiter, 2d L.	23.70	36.20	48.90	1.20	13.80	26.40	39.10	26 1.33						
20	32	α Columbæ	--	13.33	28.45	43.53	58.68	13.61	--	33 43.52	0.17	- - -	30.27	5 34 13.62	0.48	K.
	33	α Orionis	--	8.15	20.71	33.42	46.08	58.58	--	46 33.39	0.10	- - -	30.27	5 47 3.56	0.42	
22	34	μ Geminorum	--	55.17	8.75	22.24	35.65	49.25	--	13 22.21	0.06	- - -	31.40	6 13 53.55	0.53	
	35	α Canis Majoris	--	35.81	48.81	1.85	15.06	28.15	--	38 1.94	− 0.14	- - -	31.30	6 38 33.10	0.69	
	36	Jupiter, 1st L.	--	17.81	30.28	42.87	55.44	--	--	24 36.60	} + 6.18	(1.45)	30.14	11 25 14.37	- - -	
	37	Jupiter, 2d L.	--	20.77	33.09	45.83	58.32	--	--	24 39.50						
	38	β Leonis	--	29.17	42.13	55.07	8.30	21.10	--	40 55.15	− 0.08	- - -	30.06	11 41 25.13	0.93	
	39	β Corvi	--	35.20	48.77	--	--	29.53	--	25 57.83	+ 4.36	- - -	29.90	12 26 32.09	1.19	
23	40	β Tauri	40.60	55.10	9.20	23.40	37.80	52.00	6.20	16 23.47	− 0.04	- - -	25.58	5 16 49.01	0.28	B.
	41	δ Orionis	18.00	30.50	43.00	55.50	8.10	0.50	33.10	23 55.53	0.11	- - -	25.55	5 24 20.97	0.26	
	42	ε Orionis	33.80	46.00	58.30	11.00	23.50	36.00	48.60	28 11.03	0.11	- - -	25.53	5 28 36.45	0.28	
	43	α Orionis	--	12.80	25.30	38.20	50.90	3.50	16.00	46 44.45	6.36	- - -	25.46	5 47 3.55	0.37	
	44	δ Geminorum	5.00	18.60	31.70	45.30	58.60	12.50	26.00	10 45.39	0.06	- - -	25.12	7 11 10.45	0.74	
	45†	α² Geminorum	52.85	7.70	22.80	37.10	51.75	6.60	21.60	24 37.20	0.03	- - -	25.07	7 25 2.24	0.83	
	46	κ Geminorum	17.55	31.50	45.20	58.90	12.80	26.70	40.30	34 58.99	0.06	- - -	25.02	7 35 23.95	0.86	
	47	15 Argus	4.00	18.35	32.20	45.70	59.40	13.00	26.80	0 45.64	0.15	- - -	24.92	8 1 10.41	1.14	
	48	Moon, 1st L.	58.75	12.25	25.80	39.20	52.70	6.20	19.70	16 39.23	0.08	+ 72.35	24.85	8 18 16.35	- - -	
	49	α Cancri	14.50	27.80	40.20	53.30	6.20	18.80	31.60	49 53.20	0.08	- - -	24.73	8 50 17.85	1.03	
	50	α Hydræ	12.00	24.50	37.10	49.70	2.30	15.00	27.50	19 49.73	0.13	- - -	24.61	9 20 14.21	1.16	
	51	ε Leonis	15.00	28.80	42.50	56.10	9.80	23.40	37.50	36 56.16	0.06	- - -	24.53	9 37 20.63	− 1.05	
25	52	γ Pegasi	37.60	50.50	3.30	16.20	29.20	42.00	55.20	5 16.29	− 0.08	- - -	+ 13.65	0 5 29.86	+ 1.16	

Clamp East.

Feb. 18. Shortened pendulum 2.0 div.
20. Lengthened pendulum 3.5
25. Lengthened pendulum 7.5

45. Unsteady.

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Feb. 11, 6.6	+ 41.52	− 0.087	− 0.161	+ 0.098	+ 0.053
12, 8.9	39.84	.087			
16, 5.5	31.17	.087			
19, 7.7	33.80	.170			
20, 5.7	30.27				
22, 9.2	30.69	.243			
23, 7.1	25.14	.244			
25, 7.4	+ 11.50	− .294			

TE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
50.			s.	s.	s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
r. 9	1	β Geminorum . .	1.20	15.40	29.80	43.60	- -	12.40	26.60	36 41.50	+ 2.34	- - -	— 35.40	7 36 8.44	— 0.64	B.
11	2†	α Canis Majoris . .	56.00	9.00	21.75	35.00	48.00	1.00	14.20	39 34.99	— 0.14	- - -	62.21	6 38 32.64	0.40	
	3	Vesta	47.85	2.00	15.50	29.70	43.40	57.50	11.40	56 29.62	0.05	- - -	62.38	6 55 27.19	- - -	
	4	δ Geminorum . .	32.30	46.00	59.00	12.75	26.20	39.60	53.00	12 12.69	0.06	- - -	62.56	7 11 10 07	0.50	
	5	α^2 Geminorum . .	20.30	35.00	49.90	4.60	19.15	34.00	48.70	26 4.52	0.03	- - -	62.67	7 25 1.82	0.59	
	6	α Canis Minoris . .	52.40	5.15	17.50	30.25	42.90	55.25	7.30	32 30.19	0.10	- - -	62.73	7 31 27.36	0.60	
	7	β Geminorum . .	28.40	42.80	56.80	11.00	25.40	39.50	53.70	37 11.09	0.04	- - -	62.78	7 36 8.27	0.61	
	8	ε Hydræ	16.20	29.00	41.40	54.00	6.70	19.25	32.00	39 54.08	0.10	- - -	63.40	8 38 50.58	0.87	
	9	α Hydræ	39.90	52.80	5.00	18.00	30.50	43.10	55.70	21 17.86	0.13	- - -	63.75	9 20 13.98	1.09	
	10	ε Leonis	43.20	37.40	11.00	24.60	38.40	52.20	6.00	38 24.69	0.06	- - -	63.92	9 37 20.71	1.01	
	11	α Leonis	49.30	2.50	15.00	28.00	41.00	53.40	6.60	1 27.97	0.09	- - -	64.15	10 0 23.73	1.05	
	12	δ Leonis	32.80	46.40	0.00	13.40	26.70	40.00	53.70	7 13.29	0.07	- - -	64 21	11 6 9.01	1.12	
	13	δ Hydræ et Crateris .	18.20	31.10	44.00	57.20	10.00	22.70	35.55	12 56.96	0.13	- - -	64.27	11 11 52.56	1.36	
	14†	Jupiter, 1st L. . .	42.00	54.70	7.10	19.70	32.40	45.00	57.45	18 19.76	0.10	(1.52)	64.89	11 17 16.29	- - -	
	15†	Jupiter, 2d L. . .	45.00	57.80	10.10	22.90	35.45	47.90	0.50	18 22.81						
12	16	α Canis Majoris . .	- -	9.62	22.66	35.60	48.64	1.78	- -	38 35.66	0 14	- - -	2.92	6 38 32.60	0.39	K.
	17	ε Canis Majoris . .	- -	19.00	33.10	47.70	1.76	16.10	- -	52 47.53	0.16	- - -	2.92	6 52 44.45	0.56	
	18	α^2 Geminorum . .	- -	35.37	50.25	4.96	19.50	34.40	- -	25 4.90	0.03	- - -	2.92	7 25 1.95	0.58	
	19	ε Hydræ	- -	28.44	41.00	53.86	6.12	18.84	- -	38 53.65	0.10	- - -	— 2.92	8 38 50.63	0.86	
19	20	15 Argus	18.50	31.00	44.70	58.40	12.00	25.80	39.20	0 58.51	0.15	- - -	+ 12.04	8 1 10.40	0.80	B.
	21	ε Hydræ	0.25	13.30	26.00	38.80	51.20	3.80	16.40	38 38.54	— 0.10	- - -	12.04	8 38 50.48	0.77	
	22	ι Ursæ Majoris . .	47.00	5.90	24.70	43.70	2.70	21.50	40.00	43 43.64	+ 0.03	- - -	12.04	8 48 55.71	0.92	
	23	α Hydræ	24.20	37.00	49.50	2.20	14.80	27.30	40.00	20 2.14	— 0.13	- - -	12.04	9 20 14.05	1.02	
	24†	ε Leonis	27.60	41.10	54.80	8.50	22.20	36.00	49.75	37 8.56	0.06	- - -	12.04	9 37 20.54	0.95	
	25†	α Leonis	33.30	45.80	59.00	11.90	24.60	37.30	50.10	0 11.71	0.09	- - -	12.04	10 0 23.66	1.01	
	26†	δ Leonis	16.20	29.60	43.00	56.30	9.80	23.30	36.65	5 56.41	0.07	- - -	12.04	11 6 8.38	1.12	
23	27	θ Cancri	14.00	27.00	40.30	53.30	6.55	19.80	33.10	22 53.44	0.07	- - -	9.23	8 23 2.60	0.66	
	28	δ Cancri	21.00	34.25	47.50	0.60	14.00	27.00	40.15	36 0.64	0.07	- - -	9.22	8 36 9.79	0.72	
	29	α Cancri	29.90	42.60	55.40	8.30	21.00	33.80	46.90	50 8.27	0.09	- - -	9.21	8 50 17.39	0.78	
	30	Moon, 1st L. . .	35.00	48.40	1.80	15.40	28.70	41.85	55.00	54 15.16	0.08	+ 70.63	9.20	8 55 34.91	- - -	
	31	κ Cancri	50.40	3.10	16.00	28.70	41.45	54.00	7.00	59 28.66	0.09	- - -	9.19	8 59 37.76	0.83	
	32	α Hydræ	27.00	39.50	52.10	4.70	17.20	30.10	42.75	20 4.76	0.13	- - -	9.17	9 20 13.80	0.88	
	33	ε Leonis	30.10	44.00	57.65	11.20	25.10	39.00	52.70	37 11.39	0.06	- - -	9.15	9 37 20.48	0.92	
	34	α Leonis	36.15	49.00	1.80	14.75	27.45	40.10	53.00	0 14.61	0.09	- - -	9.13	10 0 23.65	0.98	
	35†	α Ursæ Majoris . .	- -	23.65	50.50	18.30	45.00	12.00	40.50	54 31.58	13.43	- - -	9.08	10 54 27.23	1.72	
	36	δ Leonis	19.50	32.90	46.30	59.90	13.00	26.80	40.00	5 59.77	0.07	- - -	9.06	11 6 9.76	1.12	
	37	Jupiter, 1st L. . .	53.00	5.50	18.00	30.60	43.00	56.00	8.50	11 30.66	0.10	(1.50)	9.06	11 11 41.12	- - -	
	38	Jupiter, 2d L. . .	55.80	8.50	21.10	33.65	46.20	59.00	11.35	11 33.66						
ril 2	39	ε Hydræ	- -	3.76	7.70	11.70	15.86	19.84	- -	38 11.77	0.35	- - -	38.84	8 38 50.26	0.57	K.
	40	ι Ursæ Majoris . .	- -	4.82	10.78	16.50	22.90	28.90	- -	48 16.78	0.12	- - -	38.85	8 48 55.51	0.63	
	41	α Hydræ	- -	27.22	31.22	35.06	39.20	43.32	- -	19 35.22	0.43	- - -	38 86	9 20 13.65	0.85	
	42	ε Leonis	- -	33.10	37.50	41.80	46.14	50.64	- -	36 41.84	— 0.26	- - -	38.87	9 37 20.45	0.79	
	43	α Ursæ Majoris . .	- -	31.08	39.80	48.40	57.38	5.86	- -	53 48.50	+ 0.02	- - -	38.88	10 54 27.40	1.59	
	44	δ Leonis	- -	21.42	25.60	29.78	34.14	38.54	- -	5 29.90	— 0.28	- - -	38.90	11 6 8.52	1.08	
	45	δ Hydræ et Crateris .	- -	5.14	9.40	13.42	17.66	21.74	- -	11 13.47	0.46	- - -	38.91	11 11 51.92	1.33	
	46	β Leonis	- -	38.54	42.72	46.66	51.00	55.14	- -	40 46.81	0.31	- - -	38.93	11 41 25.43	1.17	
	47	γ Ursæ Majoris . .	- -	4.08	11.00	17.44	24.78	31.62	- -	45 17.78	0.06	- - -	38.93	11 45 56.65	1.49	
	48	β Corvi	- -	45.38	49.72	53.92	58.38	2.72	- -	25 54.02	0.52	- - -	38.94	12 26 32.44	1.69	
	49†	12 Canum Venaticorum	- -	12.54	17.64	22.74	28.00	33.20	- -	48 22.82	0.18	- - -	38.95	12 49 1.59	1.30	
4	50	ε Leonis	- -	31.94	36.40	40.78	45.18	49.68	- -	36 40.80	0.26	- - -	39.86	9 37 20.40	0.77	
	51	α Leonis	- -	35.78	39.94	44.00	48.00	52.14	- -	59 43.97	— 0.32	- - -	39.87	10 0 23.52	0.86	
	52	α Ursæ Majoris . .	- -	29.78	38.60	47.00	56.06	4.80	-	53 47.25	+ 0.02	- - -	+ 39.88	10 54 27.15	— 1.55	

2—15. Stars unsteady.
14. Unsteady and ill-defined.
24, 25, 26, 35. Extremely unsteady.
49. All the wires have been increased 1s.

March 11, 23h. M. T. Touched regulator of clock.
March 19. Observed with old clock.
March 23. All the recorded transits have been increased by 6 minutes.
April 2. Turned eye-tube round, and made fixed wire coincide with its image.

Clamp East.

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Mar. 9, 7.5	— 35.34	— 0.577	— 0.161	+ 0.098	+ 0.053
11, 8 7	63.41	.570			
12, 7.4	— 2.92				
19, 9 4	+ 12.04				
23, 10.0	9.13	— .063			
Apr. 2, 10.8	38.90	+ .026	— 0.232	+ 0.306	— 0.155
4, 12.5	+ 39.90	+ .014			

DATE.	No. for ref.	OBJECT OBSERVED.	Times of transit over wires. Clamp.	I.	II.	III.	IV.	V.	Mean.	Corrections for— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
				s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
1850. June 3	1	α^2 Libræ	E.	34.74	38.76	42.71	47.10	51.20	42 42.91	+ 0.08	. . .	6.11	14 42 36.88	— 1.84	[illegible]
	2	β Ursæ Minoris	- - -	49.00	3.10	18.79	34.00	49.65	51 18.91	+ 2.13	. . .	6.11	14 51 14.93	3.01	
	3	Lupi, (5009)	- - -	25.62	30.40	34.84	39.68	44.03	5 34.91	— 0.15	. . .	6.10	15 5 28.66	2.20	
	4	β Libræ	- - -	55.80	0.00	4.00	8.10	[illegible]	9 3.98	+ 0.17	. . .	6.10	15 8 58.05	1.82	
	5	α Coronæ Borealis	- - -	18.14	22.80	27.21	31.80	36.37	28 27.26	0.56	. . .	6.09	15 28 21.73	1.69	
	6	α Serpentis	- - -	52.30	56.46	0.45	4.17	[illegible]	37 0.32	0.32	. . .	[illegible]	15 36 54.56	1.75	
	7	ζ Ursæ Minoris	- - -	0.50	19.75	[illegible]	[illegible]	18.30	49 39.37	2.66	. . .	6.09	15 49 35.94	4.66	
	8	β^1 Scorpii	- - -	42.80	47.00	51.15	55.40	59.60	56 51.19	0.03	. . .	[illegible]	15 56 45.13	2.07	
	9	2418, Groombridge	- - -	13.50	28.69	41.64	56.50	10.19	3 42.10	+ 1.97	. . .	6.06	17 3 38.01	4.11	
	10	2420, Groombridge	- - -	--	24.10	37.00	52.21	6.20	4 44.88	— 5.08	. . .	[illegible]	17 4 33.74	4.14	
	11		- - -	--	--	27.11	43.12	--	10 35.12	— 6.13	. . .	[illegible]	17 10 23.93	[illegible]	
	12	α Ophiuchi	- - -	57.54	1.55	5.70	9.85	13.80	28 5.69	+ [illegible]	. . .	6.06	17 28 0.02	1.84	
	13	Sagittarii, (6080)	- - -	59.32	3.40	7.55	12 00	16.51	51 7.76	— 0.04	. . .	6.05	17 51 1.67	2.09	
	14	μ^1 Sagittarii	- - -	47.00	51.20	[illegible]	59.75	4.10	4 55.47	0.00	. . .	6.05	18 4 49.42	2.00	
	15	ϵ Sagittarii	- - -	11.60	16.06	21.00	26.15	[illegible]	14 21.10	0.21	. . .	6.04	18 14 14.85	2.19	
	16	Sagittarii, (6304)	- - -	3.25	8.00	12.00	16.39	[illegible]	24 12.09	[illegible]	. . .	[illegible]	18 24 6.01	2.07	
	17	Sagittarii, (6314)	- - -	21.00	25.70	[illegible]	34.49	[illegible]	25 30.04	— 0.04	. . .	[illegible]	18 25 23.96	2.07	
	18	α Lyræ	- - -	48.50	54.00	59.50	4.09	9.00	31 58.92	+ 0.71	. . .	6.04	18 31 53.59	— 1.99	
[illegible]	19	Polaris, S. P.	- - -	16.44	[illegible]	49.07	[illegible]	22.15	59 49.31	+ 316.48	. . .	5.99	13 4 54.30	+ 5.83	K.
	20	Polaris, S. P.	W.	49.79	37.17	24.32	11.80	57.52	5 24.12	— [illegible]					
	21	η Ursæ Majoris	- - -	[illegible]	36.89	43.69	49.41	[illegible]	41 43.25	+ 1.32	. . .	5.98	13 41 28.59	— 1.24	
	22	η Bootis	- - -	30.74	34.63	39.12	43.13	47.46	47 39.02	0.79	. . .	5.98	13 47 33.83	1.30	
	23	ϵ Bootis	- - -	[illegible]	[illegible]	[illegible]	37.09	41.71	38 32.58	0.90	. . .	5.97	14 38 27.51	1.50	
	24	α^2 Libræ	- - -	[illegible]	38.44	42.73	46.69	51.05	42 42.62	0.44	. . .	5.97	14 42 37.09	1.84	
	25	β Libræ	- - -	55.42	59.66	[illegible]	7.77	11.92	9 3.73	0.50	. . .	5.97	15 8 58.26	1.82	
	26	α Serpentis	- - -	51.89	55.90	[illegible]	4.16	[illegible]	37 0.02	0.67	. . .	5.96	15 36 54.74	1.75	
	27	ζ Ursæ Minoris	- - -	58.76	18.75	39.00	57.81	17.34	49 38.33	3.72	. . .	5.96	15 49 36.09	4.61	
	28	δ^1 Scorpii	- - -	59.20	3.73	8.51	12.87	17.37	3 8.34	0.31	. . .	5.95	16 3 2.70	2.26	
	29	ϵ Scorpii	- - -	25.91	30 51	35.59	40.30	45.16	40 35.49	0.24	. . .	5.94	16 40 29.79	2.47	
	[illegible]	2411, Groombridge	- - -	56.09	[illegible]	24.68	38.21	52.30	59 24.13	2.74	. . .	5.94	16 59 20.93	4.07	
	31	Com. star $f. + 75°35'$	- - -	58.80	12.11	[illegible]	40.85	[illegible]	10 26.85	2.79	. . .	5.93	17 10 23.71	4.19	
	32	Sagittarii, (6080)	- - -	[illegible]	3.13	7.70	12.00	16.49	51 7.66	0.85	. . .	5.92	17 51 2.59	[illegible]	
	[illegible]	γ Draconis	- - -	1.20	7.81	14.39	20.70	27.09	53 14.24	1.27	. . .	5.92	17 53 9.69	— 2.32	
5	34	β Orionis	- - -	16.18	20.29	24.52	28.40	[illegible]	7 24.39	0.51	. . .	5.64	5 7 19.26	+ 0.86	B.
	35†	α Canis Majoris	- - -	[illegible]	32.61	37.20	41.21	[illegible]	38 36.93	0.44	. . .	[illegible]	6 38 31.75	[illegible]	
	36†	Polaris, S. P.	- - -	[illegible]	2.09	42.74	23.79	2.54	59 42.63	+ 319.91					
	37	Polaris, S. P.	- - -	5.71	46.00	26.00	7.20	[illegible]	5 26.16	— [illegible]	. . .	5.51	13 4 56.66	+ 5.10	
	38	Polaris, S. P.	E.	44.11	24.32	4.57	46.41	[illegible]	11 4.96	— 364.35					
	[illegible]	α Virginis	- - -	[illegible]	20.41	24.21	28.50	32.60	17 24.42	+ 0.15	. . .	[illegible]	13 17 19.06	— 1.40	
	40	η Ursæ Minoris	- - -	30.66	37.00	[illegible]	49.46	[illegible]	41 43.12	0.61	. . .	[illegible]	13 41 38.52	1.23	
	41	η Bootis	- - -	30.30	34.45	38.76	[illegible]	47.15	47 38.74	+ 0.46	. . .	[illegible]	13 47 33.69	1.29	
	42	θ Centauri	- - -	50.18	55.10	59.80	5.00	10.00	58 0.02	— [illegible]	. . .	[illegible]	13 57 54.29	2.07	
	43	α Bootis	- - -	47.20	51.26	55.49	[illegible]	4.15	8 55.58	+ 0.47	. . .	[illegible]	14 8 50.55	1.35	
	44	Hydræ, (4763)	- - -	[illegible]	31.00	35.17	[illegible]	44.35	14 35.31	— [illegible]	. . .	5.50	14 14 29.73	1.90	
	[illegible]	Hydræ, (4784)	- - -	23.52	27.30	31.40	36.10	40.70	19 31.74	0.11	. . .	5.50	14 19 26.13	[illegible]	
	46	Libræ, (4854)	- - -	32.52	37.00	41.20	[illegible]	50.15	34 41.33	— 0.04	. . .	5.49	14 34 35.80	1.91	
	47	α^2 Libræ	- - -	[illegible]	38.23	42.30	46.65	50.70	42 42.42	+ 0.08	. . .	5.49	14 42 37.01	[illegible]	
	[illegible]	Hydræ, (4930)	- - -	46.00	50.27	54.61	59.40	[illegible]	49 54.79	— 0.08	. . .	5.49	14 49 49.22	2.11	
	49	Hydræ, (4940)	- - -	9.11	13.78	18.05	22.70	27.20	53 18.17	0 08	. . .	5.49	14 53 12.60	2.13	
	50	Lupi, (5009)	- - -	25.19	30.00	[illegible]	39.25	[illegible]	5 34.57	— 0.15	. . .	5.48	15 5 28.94	2.20	
	51	β^1 Libræ	- - -	55.50	59.46	3.49	7.40	11.52	9 3.44	+ 0.17	. . .	— 5.48	15 8 58.13	— 1.83	

Date.	Clock.	Hourly rate.	Value of— m.	n.	c.
h.	s.	s.	s.	s.	s.
June 3, 13.3	— 6.14	+ 0.020	E. +0.406 W. +0.486	+ 0.624 + 0.562	— 0.155 + 0.105
4, 14.6	5.97	.016			
5, 13.5	— 5.51	+ .016			

35, 36. Indistinct; weather hazy.

TE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. Clamp.	I.	II.	III.	IV.	V.	Mean	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R Ascension.	Reduct'n to 1850.0	Observer.
50				s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
e 24	1	Com. star m+70° 8′	E.	7.52	19.90	31.21	- -	55.28	59 28.48	+ 4.69	- - -	+ 12.37	15 59 45.54	− 2.66	K.
	2	δ Ophiuchi . . .	- - -	10.46	14.40	18.35	22.70	26.41	6 18.46	0.22	- - -	12.38	16 6 31.06	1.93	
	3	μ^1 Sagittarii . . .	W.	28.29	32.78	37.14	41.70	45.6[illegible]	4 37.12	0.39	- - -	12.54	18 4 50.05	2.32	
	4	α Lyræ	- - -	30.24	35.12	40.48	45.60	50.74	31 40.44	1.07	- - -	12.57	18 31 54.08	2.27	
	5	Moon, 2d L. . .	- - -	49.00	55.07	57.71	1.81	6.25	45 57.57	0.40	− 65.16	12.59	18 45 4.40	- - -	
	6	o Sagittarii . . .	- - -	22.84	27.00	31.18	35.61	39.80	55 31.29	0.38	- - -	12.60	18 55 44.27	2.26	
	7	ζ Aquilæ	- - -	11.59	15.71	19.73	25.87	28.24	58 19.83	0.74	- - -	12.60	18 58 33.17	2.06	
	8	π Sagittarii . . .	- - -	31.41	35.66	40.00	44.32	48.71	0 40.02	0.39	- - -	12.61	19 0 53.02	2.24	
25	9†	α Bootis	- - -	26.48	31.00	35.49	39.50	43.54	8 35.20	0.80	- - -	14.34	14 8 50.34	1.19	B.
	10	Comet 1850, I. . .	- - -	12.45	19.69	29.20	35.20	42.65	43 27.44	1.59	- - -	14.40	14 43 43.43	- - -	
	11	α Coronæ Borealis .	- - -	57.40	1.81	6.40	11.00	15.51	28 6.42	0.89	- - -	14.47	15 28 21.78	1.60	
	12	α Serpentis . . .	- - -	31.41	35.53	39.61	43.55	47.60	36 39.54	0.67	- - -	14.48	15 36 54.69	1.74	
	13	δ Ophiuchi . . .	- - -	8.11	12.00	16.25	20.10	24.10	6 16.11	0.56	- - -	14.52	16 6 31.19	1.93	
	14†	α Scorpii	- - -	51.60	56.00	0.50	5.00	9.42	20 0.50	0.33	- - -	14.54	16 20 15.37	2.33	
26	15	Com star r+64° 54′	E.	39.80	49.92	38.86	8.80	18.00	17 59.07	1.39	- - -	16.70	15 18 17.16	1.83	K.
	16	Lalande, 28251 .	- - -	3.42	7.67	11.89	16.33	20.69	23 12.00	0.00	- - -	16.71	15 23 28.71	2.06	
	17	α Serpentis . . .	- - -	29.40	33.58	37.49	41.71	45.64	36 37.56	0.33	- - -	- - -	- - - - -	1.74	
	18	ζ Ursæ Minoris . .	- - -	35.89	55.73	15.21	35.00	54.69	49 15.30	+ 2.66	- - -	16.75	15 49 34.71	3.47	
29	19	ϵ Scorpii	- - -	56.40	11.42	6.00	11.05	15.81	40 6.14	− 0.20	- - -	23.61	16 40 29.55	2.50	B.
	20	ϵ Ursæ Minoris . .	- - -	11.00	41.10	9.68	41.00	10.20	1 10.60	+ 3.87	- - -	23.63	17 1 38.10	6.76	
	21	A Ophiuchi . . .	- - -	37.50	41.69	46.00	50.62	55.00	5 46.16	− 0.08	- - -	23.63	17 6 9.71	2.44	
	22	θ Ophiuchi . . .	- - -	17.71	22.19	26.42	31.10	35.40	12 26.56	− 0.05	- - -	23.64	17 12 50.15	2.41	
	23	μ^1 Sagittarii . . .	- - -	17.58	22.00	26.00	30.30	34.60	4 26.10	0.00	- - -	23.72	18 4 49.82	2.37	
	24	δ Ursæ Minoris . .	- - -	16.80	25.00	30.00	38.20	- -	19 57.50	+ 42.26	- - -	23.74	18 21 3.50	18.50	
	25	α Lyræ	- - -	19.29	24.15	29.30	34.60	39.50	31 29.37	0.71	- - -	23.76	18 31 53.84	2.31	
	26	β^1 Lyræ	- - -	1.00	5.50	10.28	15.00	20.00	44 10.36	0.63	- - -	23.78	18 44 34.77	2.24	
y 1	27	ϵ Bootis	- - -	50.32	55.00	59.45	4.00	8.20	37 59.39	0.56	- - -	27.20	14 38 27.15	1.28	
	28	α^2 Libræ	- - -	1.00	5.00	9.20	13.60	17.68	42 9.30	+ 0.08	- - -	27.20	14 42 36.58	1.72	
	29	Comet star . . .	- - -	- -	57.00	5.15	13.15	21.05	51 9.09	− 2.75	- - -	27.22	14 51 33.56	1.32	
	30	Comet star s+59° 7′	- - -	46.46	54.22	2.00	10.08	17.80	53 2.11	+ 1.15	- - -	27.22	14 53 30.48	1.32	
	31	Comet star t+59° 8′	- - -	- -	- -	- -	23.55	31.27	53 27.41	− 10.68	- - -	27.22	14 53 43.95	1.32	
	32	Iris	- - -	49.00	53.41	57.70	2.00	6.05	59 57.63	+ 0.03	- - -	27.22	15 0 24.88	- - -	
	33	ι^1 Libræ	- - -	6.70	11.00	15.00	19.40	23.60	3 15.14	+ 0.03	- - -	27.22	15 3 42.39	1.89	
	34	ψ^1 Lupi	- - -	40.31	45.15	49.81	54.80	59.70	29 49.95	− 0.20	- - -	27.25	15 30 17.00	2.23	
	35	ψ^2 Lupi	- - -	33.40	38.20	43.00	48.05	53.00	32 43.13	− 0.20	- - -	27.25	15 33 10.18	2.36	
	36	α Serpentis . . .	- - -	18.80	22.80	26.67	30.80	34.60	36 26.73	+ 0.33	- - -	27.26	15 36 54.32	1.71	
	37	ζ Ursæ Minoris . .	- - -	26.00	46.00	4.80	25.20	45.60	49 5.52	2.66	- - -	27.28	15 49 35.46	3.11	
	38	Com. star o+69° 38′	- - -	43.40	54.60	6.20	18.00	29.00	59 6.24	+ 1.68	- - -	27.29	15 59 35.21	2.33	
	39	Com. star p+69 39	- - -	- -	- -	- -	39.40	51.10	59 45.25	− 15.80	- - -	27.29	15 59 56.74	2.33	
	40	Anonym's —24 44	- - -	9.00	13.38	17.81	22.30	26.84	6 17.87	0.05	- - -	27.30	16 6 45.12	2.25	
	41	α Scorpii	- - -	38.80	43.17	47.32	52.18	56.70	19 47.63	0.07	- - -	27.31	16 20 14.87	2.33	
	42	ϵ Scorpii	- - -	52.30	57.20	2.09	7.30	12.00	40 2.18	− 0.20	- - -	27.33	16 40 29.31	2.50	
	43	α Herculis . . .	- - -	14.21	18.21	22.41	26.69	30.72	7 22.45	+ 0.41	- - -	27.36	17 7 50 22	1.99	
	44	α Ophiuchi . . .	- - -	24.20	28.00	32.35	36.60	40.60	27 32.35	0.39	- - -	27.39	17 28 0 13	2.05	
	45	μ^1 Sagittarii . . .	- - -	13.50	18.00	22.50	26.38	30.69	4 22.11	0.00	- - -	27.43	18 4 49 54	2.39	
	46	δ Ursæ Minoris . .	- - -	14.00	20.00	29.20	36.30	42.25	20 28.37	8.30	- - -	27.45	18 21 4.12	18.36	
	47	α Lyræ	- - -	15.00	20.35	25.23	30.57	35.60	31 25.35	0.71	- - -	27.46	18 31 53.52	2.32	
	48	ζ Aquilæ	- - -	56.59	0.90	4.80	9.18	13.20	58 4.93	0.40	- - -	27.50	18 58 32.83	2.15	
	49	δ Aquilæ	- - -	22.23	26.00	30.00	34.00	38.00	17 30.05	+ 0.29	- - -	27.51	19 17 57.85	− 2.14	
	50	Hygea?	- - -	14.70	19.00	25.00	28.00	31.70	25 23.28	− 0.01	- - -	27.52	19 25 50.79	- - -	
2	51†	β Orionis	- - -	40.41	44.49	48.51	52.70	56.72	6 48.57	+ 0.17	- - -	30.66	5 7 19.40	+ 0.49	
	52†	β Tauri	- - -	8.00	12.61	17.00	21.80	26.79	16 17.24	+ 0.57	- - -	+ 30.68	5 16 48.49	+ 0.36	

9, 14. Stars very unsteady.
51, 52. Unsteady.

Date.	Clock.	Hourly rate.	VALUE OF m	n	c
h.	s.	s.	s.	s.	s.
June 24, 16.4	+ 12.40	+ 0.080	E. +0.406	+ 0.624	− 0.155
			W. +0.486	+ 0.562	+ 0.105
25, 15.5	14.47	.090			
26, 15.6	16.73	.096			
29, 18.4	23.75	.085			
July 1, 17.0	27.36	.068			
2, 5.7	+ 30.70	+ 0.060			

TE.	No. for ref.	OBJECT OBSERVED.	Clamp	Set.	I.	II	III.	IV.	V.	Mean.	Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s	h. m. s.	s.	
150. g. 16	1†			A.	28. 20	31. 10	33. 71	36. 35	39. 00							
	2			B.	58. 72	1. 20	3. 40	5. 60	7. 82							
	3	β Aquilæ	E.	C	27. 42	29. 45	31. 53	33. 52	35. 61	48 31. 53	+ 0. 48	. . .	— 33. 04	19 47 58. 97	— 2. 36	B.
	4			D.	55. 40	57. 38	59. 75	2. 17	4. 10							
	5			E.	24. 00	26. 42	29. 49	32. 30	34. 70							
21	6			A.	55. 80	58. 51	1. 12	3. 71	6. 50							
	7			B.	26. 00	28. 49	30. 80	32. 83	35. 19							
	8	α Canis Minoris	--	C.	54. 90	56. 90	58. 90	1. 00	3. 10	31 58. 91	0. 48	. . .	32. 35	7 31 27. 04	0. 20	
	9			D.	22. 68	24. 70	27. 12	29. 45	31. 44							
	10			E.	51. 18	53. 69	56. 83	59. 65	2. 20							
26	11			B.	2. 52	5. 00	7. 58	10. 00	12. 51							
	12	β Geminorum	--	C.	35. 20	37. 40	39. 50	42. 00	44. 05	36 39. 52	0. 70	. . .	32. 35	7 36 7. 87	0. 18	
	13			D.	6. 40	8. 50	11. 57	14. 20	16. 40							
	14	δ Ursæ Minoris	--	C.	3. 00	36. 00	12. 50	46. 00	19. 50	21 11. 40	8. 32	. . .	31. 43	18 20 48. 29	4. 48	
	15			A.	3. 49	7. 00	10. 40	13. 72	17. 40							
	16			B.	42. 40	45. 40	48. 10	50. 76	53. 75							
	17	α Lyræ	--	C	18. 70	21. 48	24. 25	26. 40	29. 10	32 23. 98	0. 83	. . .	31. 43	18 31 53. 38	1. 86	
	18			D.	54. 30	56. 65	59. 90	2. 80	5. 40							
	19			E.	30. 78	33. 73	37. 70	41. 40	44. 60							
	20			A.	50. 16	53. 26	56. 39	59. 60	3. 00							
	21			B.	26. 00	29. 00	31. 50	33. 70	36. 68							
	22	β Lyræ	--	C.	59. 30	2. 85	5. 00	7. 47	10. 00	45 5. 11	0. 76	. . .	31. 43	18 44 34. 44	1. 94	
	23			D.	33. 70	35. 80	38. 90	41. 80	43. 80							
	24			E.	7. 69	10. 50	13. 80	17. 60	20. 20							
	25			A.	59. 20	2. 20	5. 00	7. 30	10. 34							
	26			B.	30. 48	33. 00	35. 00	37. 15	39. 50							
	27	ζ Aquilæ	--	C.	59. 70	1. 80	3. 90	6. 00	8. 00	59 3. 95	0. 55	. . .	31. 42	18 58 33. 08	2. 07	
	28			D.	28. 40	30. 33	32. 75	35. 30	37. 45							
	29			E.	57. 40	0. 20	3. 37	6. 20	8. 70							
	30			A.	26. 20	29. 08	31. 79	33. 90	36. 80							
	31			B.	56. 60	59. 00	1. 20	3. 20	5. 45							
	32	δ Aquilæ	--	C.	25. 10	27. 00	29. 12	31. 18	33. 20	18 29. 15	0. 46	. . .	31. 42	19 17 58. 19	2. 22	
	33			D.	52. 72	55. 00	57. 19	59. 70	1. 50							
	34			E.	21. 13	23. 80	26. 80	29. 83	32. 40							
	35			A.	57. 30	0. 50	2. 90	5. 28	8. 40							
	36			B.	27. 83	30. 26	32. 60	34. 64	36. 80							
	37	α Aquilæ	--	C.	56. 60	59. 00	0. 70	2. 78	5. 00	44 0. 89	0. 50	. . .	31. 41	19 43 29. 98	2. 29	
	38			D.	24. 65	26. 75	29. 12	31. 70	33. 66							
	39			E.	53. 55	56. 20	59. 30	2. 10	4. 60							
	40			A.	26. 68	29. 40	32. 00	34. 63	37. 45							
	41			B.	56. 90	59. 60	1. 52	3. 72	6. 00							
	42	β Aquilæ	--	C.	25. 80	27. 90	29. 90	31. 72	33. 80	48 29. 81	0. 48	. . .	— 31. 41	19 47 58. 88	2. 30	
	43			D.	53. 70	55. 50	58. 00	0. 50	2. 40							
	44			E	22. 00	24. 51	27. 60	30. 69	33. 30							
27	45			A.	21. 50	26. 34	30. 18	34. 39	38. 79							
	46			B.	10. 29	14. 10	17. 62	20. 90	24. 33							
	47	γ Draconis	--	C.	56. 11	59. 56	2. 50	5. 90	9. 00	53 2. 62	+ 1. 06	. . .	+ 5. 16	17 53 8. 84	1. 45	K.
	48			D.	40. 29	43. 82	47. 71	51. 70	54. 68							
	49			E.	26. 50	30. 70	35. 12	39. 83	43. 72							
	50			C.	39. 90	42. 17	44. 41	46. 51	48. 66							
	51	μ^1 Sagittarii	--	D.	9. 70	11. 81	14. 40	17. 10	19. 10	5 14. 92	— 30. 36	. . .	+ 5. 17	18 4 49. 73	— 2. 16	
	52			E	40. 18	42. 72	46. 12	49. 10	41. 93							

1. Stars very unsteady.

Date.	Clock.	Hourly rate.	VALUE OF— m.	n.	c.
h.	s.	s.	s.	s.	s.
Aug. 16, 19. 2	— 33. 01	— 0. 046	+ 0. 483	+ 0. 518	— 0. 049
21, 7. 5	32. 35	. 008			
26, 19. 2	— 31. 42	+ . 014			
27, 19. 1	+ 5. 23	+ 0. 056			

. .9

ATE.	No. for ref.	OBJECT OBSERVED.	Clamp	Set.	I.	II.	III.	IV.	V.	Mean.	Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
350.																
v. 13	1			A.	30.52	32.89	35.64	38.80	41.27							
	2			B.	1.45	3.49	6.00	8.30	10.19							
	3	ψ^3 Aquarii - - - -	W.	C.	30.28	32.28	34.30	36.31	38.40	10 34.33	+ 0.26	- - -	+ 36.92	23 11 11.51	— 2.27	K.
	4			D.	58.34	0.71	2.77	5.00	7.35							
	5			E.	27.20	30.20	32.80	35.31	38.40							
	6			A.	31.62	34.57	37.10	39.88	42.51							
	7			B.	2.20	4.26	6.80	9.39	11.30							
	8	Weisse XXIII, 602	--	C.	30.89	32.91	35.00	37.00	39.00	28 34.94	0.27	- - -	36.90	23 29 12.11	2.42	
	9			D.	58.67	0.83	3.18	5.20	7.39							
	10			E.	27.39	30.21	32.81	35.25	38.15							
	11			A.	32.39	34.92	38.10	40.87	43.39							
	12			B.	3.44	5.60	8.10	10.43	12.62							
	13	Flora - - - -	--	C.	32.23	34.60	36.52	38.50	40.67	59 36.53	0.27	- - -	36.87	0 0 13.67	- - -	
	14			D.	0.43	2.91	5.26	7.30	9.42							
	15			E.	29.23	32.62	35.20	37.79	40.81							
	16			A.	51.47	54.00	56.90	59.90	2.32							
	17			B.	22.81	25.00	27.40	30.00	31.83							
	18	γ Pegasi - - - -	--	C.	52.30	54.29	56.19	58.39	0.52	4 56.36	0.27	- - -	36.87	0 5 32.50	2.69	
	19			D.	20.63	23.16	25.38	27.59	30.00							
	20			E.	50.17	53.23	55.78	58.30	1.36							
	21			A.	4.57	7.00	10.20	13.42	16.10							
	22			B.	37.00	39.18	41.80	44.33	46.46							
	23	α Bootis - - - -	--	C.	7.15	9.29	11.55	13.78	16.00	8 11.53	0.28	- - -	37.52	14 8 49.33	— 0.14	B.
	24			D.	36.54	39.10	41.39	43.55	46.16							
	25			E.	6.90	10.05	12.83	15.41	18.58							
	26			A.	37.00	39.70	43.00	46.40	49.18							
	27			B.	11.40	13.60	16.48	19.11	21.50							
	28	ϵ Bootis - - - -	--	C.	43.63	45.82	48.18	50.15	52.62	37 48.07	0.28	- - -	37.52	14 38 25.87	+ 0.09	
	29			D.	14.54	17.52	19.82	22.17	24.90							
	30			E.	46.80	50.35	53.00	55.80	59.09							
	31			A.	31.00	33.56	36.40	39.70	42.30							
	32			B.	2.80	4.80	7.47	10.00	12.00							
	33	Mercury, centre -	--	C.	32.25	34.31	36.60	38.55	40.58	46 36.52	0.26	- - -	37.52	14 47 14.32	- - -	
	34			D.	1.00	3.69	5.75	8.12	10.51							
	35			E.	30.70	33.80	36.60	39.00	42.14							
14	36			A.	28.60	31.20	34.30	37.72	40.30							
	37			B.	1.00	2.80	5.60	8.40	10.30							
	38	Sun, 1st L. - - -	--	C.	31.00	33.16	35.25	37.40	39.30	16 35.17						
	39			D.	0.00	2.57	4.78	7.00	9.32							
	40			E.	30.10	33.12	35.90	38.40	41.90		0.26	(68.52)	37.52	15 18 21.47	- - -	
	41			B.	17.80	19.61	22.28	25.38	27.32							
	42	Sun, 2d L. - - -	--	C.	48.00	50.00	52.18	54.49	56.43	18 52.20						
	43			D.	16.90	19.67	21.90	24.20	26.80							
	44			B.	47.70	49.70	52.00	54.70	56.70							
	45	α Ophiuchi - - -	--	C.	16.90	18.79	21.00	23.05	25.15	27 20.98	0.27	- - -	37.52	17 27 58.77	— 0.40	
	46			D.	45.00	47.52	49.50	52.50	54.18							
	47			A.	53.00	56.00	59.30	2.49	5.40							
	48			B.	27.51	29.88	32.75	35.58	37.30							
	49	Venus, 1st L. - -	--	C.	59.70	2.00	4.28	6.60	8.90	58 4.31	+ 0.25	+ 1.62	+ 37.52	17 58 43.70	- - -	
	50			D.	30.70	33.60	36.00	38.14	41.30							
	51			E.	3.18	6.50	9.52	12.50	15.52							

Date.	Clock.	Hourly rate.	VALUE OF m.	VALUE OF n.	VALUE OF c.
h.	s.	s.	s.	s.	s.
Nov. 13, 20.8	+ 37.04	— 0.052	+ 0.312	+ 0.026	— 0.038
14, 19.7	+ 37.52	0.000			

DATE.	No. for ref.	OBJECT OBSERVED.	Clamp.	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
1850.					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
Nov. 14	1			A.	37.00	39.60	42.47	45.60	48.26							
	2			B.	8.40	10.44	13.00	15.38	17.80							
	3	ε Pegasi	W.	C.	37.72	39.86	42.10	44.00	46.11	56 41.97	+ 0.27	- - -	+ 37.52	22 57 19.76	— 2.27	B.
	4			D.	6.18	8.90	11.00	13.00	15.50							
	5			E.	35.71	38.80	41.32	44.00	47.00							
	6			A.	54.21	56.70	59.60	2.49	5.00							
	7			B.	24.90	26.80	29.29	31.70	33.70							
	8	φ Aquarii	--	C.	53.40	55.60	57.61	59.80	1.79	6 57.55	0.26	. . .	37.52	23 6 35.33	2.24	
	9			D.	21.35	23.62	25.70	27.90	30.37							
	10			E.	49.80	53.20	55.52	58.10	0.70							
	11			A.	29.90	32.30	35.14	38.40	41.00							
	12			B.	0.70	2.70	5.50	7.60	9.61							
	13	ψ^3 Aquarii	--	C.	29.75	31.86	33.67	35.78	38.00	10 33.79	0.26	. . .	37.52	23 11 11.57	2.26	
	14			D.	57.60	0.15	2.20	4.59	6.82							
	15			E.	26.70	29.70	32.20	34.80	38.00							
	16			A.	40.35	43.00	46.00	48.90	51.80							
	17			B.	11.50	13.50	16.00	18.46	20.68							
	18	Moon, 1st L. . .	--	C.	40.52	42.78	44.79	47.00	48.71	50 44.90	0.26	+ 62.44	37.52	23 52 25.12	. . .	
	19			D.	9.00	11.60	13.58	16.00	18.50							
	20			E.	38.30	41.28	44.00	46.60	49.58							
	21			A.	1.00	3.40	6.05	9.10	11.70							
	22			B.	31.28	33.63	36.00	38.30	40.35							
	23	Piscium, (8368) .	--	C.	0.00	2.20	4.10	6.12	8.20	56 4.17	0.26	. . .	37.52	23 56 41.95	2.48	
	24			D.	27.85	30.38	32.38	34.40	36.80							
	25			E.	56 24	0.30	2.10	4.70	7.60							
	26			A.	51.00	53.30	56.17	59.00	2.00							
	27			B.	22.39	24.29	26.60	29.38	31.52							
	28	γ Pegasi	--	C.	51.70	53.80	56.00	58.00	0.00	4 55.79	0.27	. . .	37.52	0 5 33.58	2.69	
	29			D.	20.00	22.90	24.80	27.00	29.60							
	30			E.	49.49	52.60	55.20	57.50	0.50							
	31			A.	36.50	40.80	45.60	50.90	55.10							
	32			B.	30.40	34.00	38.51	42.60	46.46							
	33	α Cassiopeiæ . . .	--	C.	20.90	25.00	28.10	31.60	35.27	31 28.09	0.28	. . .	37.52	0 32 5.89	4.11	
	34			D.	10.11	14.20	18.00	21.70	25.70							
	35			E.	0.40	5.76	10.00	14.80	19.80							
	36			A.	1.41	4.00	6.49	9.59	12.00							
	37			B.	31.80	33.82	36.00	38.31	40.90							
	38	Saturn, 1st L. . .	--	C.	0.30	2.20	4.30	6.30	8.32	59 4.31	0.27	+ 0.63	37.52	0 59 42.73	. . .	
	39			D.	28.00	30.40	32.43	34.30	36.90							
	40			E.	56.20	59.50	2.10	4.70	7.35							
	41			A.	53.00	55.40	58.43	1.38	3.70							
	42			B.	23.80	25.80	28.11	30.68	32.52							
	43	θ^1 Ceti	--	C.	52.54	54.50	56.49	58.70	0.80	15 56.62	0.27	. . .	37.52	1 16 34.41	— 2.75	
	44			D.	20.40	23.00	25.00	27.15	29.38							
	45			E.	49.30	52.49	55.00	57.50	0.30							
	46			A.	45.00	47.43	50.20	53.41	55.80							
	47			B.	16.00	18.00	20.40	23.00	24.90							
	48	Uranus, centre . .	--	C.	45.00	47.00	48.90	51.00	53.00	41 48.92	+ 0.27	. . .	+ 37.52	1 42 26.71	. . .	
	49			D.	12.79	15.00	17.50	19.65	22.00							
	50			E.	41.68	44.80	47.48	50.00	53.00							

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Nov. 14, 19.7	+ 37.52	0.000	+ 0.312	+ 0.026	— 0.038
21, 21.7	+ 66.73	+ 0.030			

Nov. 19. Clock stopped for a few seconds.

DATE.	No. for ref.	OBJECT OBSERVED.	Clamp.	Set.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	Mean.	CORRECTIONS FOR— Inst.	Semi-diam.	Clock.	Observed R. Ascension.	Reduct'n to 1850.0	Observer.
					s.	s.	s.	s.	s.	m. s.	m. s.	s.	s.	h. m. s.	s.	
1850. Nov. 20	1			A.	8.00	10.70	13.90	17.24	20.21							
	2			B.	42.40	44.69	47.38	50.07	52.30							
	3	ε Bootis	W.	C.	14.57	16.81	19.09	21.37	23.66	37 19.07	+ 0.28	- - -	+ 66.52	14 38 25.87	0.00	K.
	4			D.	45.70	48.44	50.70	53.13	55.89							
	5			E.	17.93	21.36	24.13	26.90	30.19							
	6			A.	59.31	8.86	19.43	30.80	40.36							
	7			B.	55.49	3.10	12.30	21.49	28.89							
	8	β Ursæ Minoris . .	--	C.	43.86	51.66	59.30	6.82	14.30	49 59.00	0.26	- - -	66.52	14 51 5.78	+ 6.06	
	9			D.	28.76	37.71	45.84	53.80	2.93							
	10			E.	17.40	28.57	38.12	47.49	58.50							
21	11			A.	20.19	22.87	25.87	29.00	31.66							
	12			B.	52.63	54.84	57.37	59.98	2.05							
	13	Sun, 1st L. . . .	--	C.	22.96	25.13	27.26	29.39	31.50	47 27.27	0.26	− 69.24	66.55	15 47 24.84	- - -	
	14			D.	52.49	55.00	57.19	59.43	1.90							
	15			E.	22.79	25.92	28.76	31.20	34.38							
	16			A.	32.90	35.14	38.30	41.27	43.43							
	17			B.	3.72	5.89	8.36	10.86	12.69							
	18	Neptune . . .	--	C.	32.83	35.00	36.90	39.00	41.00	24 36.86	0.25	- - -	66.75	22 25 43.86	- - -	
	19			D.	1.24	3.27	5.00	7.70	10.00							
	20			E.	29.81	32.93	35.40	38.00	40.91							
	21			A.	50.00	52.39	55.24	58.19	1.00							
	22			B.	20.89	22.91	25.40	27.80	29.77							
	23	ζ Pegasi	--	C.	49.67	51.90	53.92	56.00	58.00	32 53.85	+ 0.27	- - -	66.75	22 34 0.87	− 2.01	
	24			D.	17.74	20.30	22.21	24.40	26.88							
	25			E.	46.71	49.90	52.29	54.85	57.83							
	26			B.	38.49	40.60	43.50	46.30	48.59							
	27	α Piscis Australis .	--	C.	11.29	13.69	16.00	18.22	20.69	48 32.69	− 16.44	- - -	66.76	22 49 23.01	2.05	
	28			D.	43.47	46.11	48.59	51.00	53.80							
	29			E.	16.23	19.89	22.77	25.43	29.06							
	30			A.	7.67	10.21	13.29	16.20	18.84							
	31			B.	39.23	41.28	43.79	46.30	48.29							
	32	α Pegasi	--	C.	8.54	10.73	12.80	14.60	16.89	56 12.71	+ 0.27	- - -	66.76	22 57 19.74	2.18	
	33			D.	37.00	39.62	41.69	43.88	46.30							
	34			E.	6.40	9.60	12.09	14.77	17.69							
	35			A.	6.50	8.74	11.67	14.69	17.11							
	36			B.	36.92	38.90	41.30	43.82	45.80							
	37	ι Piscium	--	C.	5.40	7.60	9.50	11.48	13.56	31 9.53	0.27	- - -	66.78	23 32 16.58	2.36	
	38			D.	33.29	35.71	37.80	39.91	42.14							
	39			E.	1.73	4.79	7.39	9.80	12.70							
	40			A.	21.80	24.30	27.00	30.17	32.80							
	41			B.	53.19	55.20	57.66	0.30	2.24							
	42	γ Pegasi	--	C.	22.37	24.45	26.60	28.80	30.70	4 26.63	0.27	- - -	66.79	0 5 33.69	− 2.62	
	43			D.	50.90	53.39	55.70	57.80	0.24							
	44			E.	20.41	23.46	26.05	28.69	31.66							
	45			A.	51.15	55.00	59.25	3.78	7.85							
	46			B.	38.58	41.72	45.38	49.15	52.15							
	47	η Ursæ Majoris . .	--	C.	22.68	26.20	28.78	32.00	35.20	40 28.98	0.28	- - -	67.55	13 41 36.81	+ 0.67	B.
	48			D.	5.60	9.48	12.50	16.00	19.45							
	49			E.	50.00	54.40	58.52	2.50	7.20							
	50			B.	50.79	52.75	55.40	57.90	59.90							
	51	η Bootis	--	C.	20.80	22.80	25.20	27.25	29.38	46 25.07	+ 0.28	- - -	+ 67.55	13 47 32.90	− 0.44	
	52			D.	50.00	52.70	54.69	57.00	59.50							

Date	Clock.	Hourly rate.	VALUE OF m.	n.	c.
h.	s.	s.	s.	s.	s.
Nov. 21, 21.7	+ 66.73	+ 0.030	+ 0.312	+ 0.026	− 0.038
21, 14.0	+ 67.55	0.000			

OBSERVATIONS

WITH

THE MURAL CIRCLE,

1849.

NATIONAL OBSERVATORY.

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	Microscopes. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1849.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
January 4	†1	Moon, S. L. - - - - - -	- -	— 3.6	46 7 30.3	35.0	41.0	28.4	34.7	15.0	30.73	31.0597	31.0284	29.872
	†2	η Tauri - - - - - -	4	- - -	35 14 60.0	64.9	70.8	55.8	61.2	47.1	59.97	30.6367		.868
	†3	Tauri, (1241) - - - - -	4	- - -	46 49 59.2	64.1	70.2	56.2	62.9	46.9	59.93	31.3255		.864
	†4	Nadir - - - - - - - -	- -	- - -	199 59 57.8	64.0	68.2	57.4	58.7	48.2				
	5				57.7	64.0	68.0	57.5	58.4	48.2				
											58.845	31.0100		
	6				57.4	64.0	67.2	56.9	58.9	48.1				
	†7				57.2	63.9	67.1	57.0	58.6	47.9				
	8	α Aurigæ - - - - - - - -	4	- - -	13 4 60.1	66.1	71.1	56.1	61.9	47.9	60.53	32.3890		.870
	†9	β Tauri - - - - - - - -	4	- - -	30 24 59.8	64.3	70.2	56.5	61.9	47.8	60.08	30.9035		.856
	†10	δ Orionis - - - - - - - -	4	- - -	59 14 59.9	67.3	72.1	59.7	64.8	50.2	62.33	28.2674		
	11	α Columbæ - - - - - - -	4	- - -	92 59 59.5	66.7	70.5	58.9	62.1	46.9	60.77	31.0155		.870
12	12	α Arietis - - - - - - - -	4	- - -	36 9 60.0	63.9	69.9	55.8	61.2	45.3	59.35	32.0904	30.8084	30.632
	13	γ Ceti - - - - - - - - -	4	- - -	56 19 60.2	64.5	70.5	57.2	62.8	47.6	60.47	33.4122		.630
	14	α Ceti - - - - - - - - -	4	- - -	55 24 60.0	64.8	71.9	58.3	62.7	47.2	60.82	32.3169		.632
	15	α Persei - - - - - - - -	4	- - -	59 34 59.2	63.5	70.0	54.3	59.0	43.8	58.30	31.0875		.624
	16	η Tauri - - - - - - - -	4	- - -	35 14 60.0	63.8	69.3	53.8	59.2	45.4	58.58	30.3544		.622
	17	γ^1 Eridani - - - - - - -	4	- - -	72 49 59.3	65.0	70.3	57.0	61.8	45.4	59.80	31.7557		.620
	18	ϵ Tauri - - - - - - - -	4	- - -	42 39 60.0	65.0	70.0	55.0	60.8	44.8	59.27	29.5596		.600
	19	α Aurigæ - - - - - - - -	4	- - -	13 4 60.0	66.8	72.0	57.5	62.0	46.5	60.80	32.1632		.598
	20	β Tauri - - - - - - - -	4	- - -	30 24 60.0	65.1	71.5	57.2	62.2	47.0	60.50	30.6601		.598
	21	ϵ Orionis - - - - - - - -	4	- - -	60 9 60.0	65.3	72.3	58.0	63.2	47.8	61.10	29.7252		.592
	22	α Orionis - - - - - - - -	4	- - -	51 29 60.0	65.8	72.2	58.0	63.5	46.8	61.05	30.1086		.588
	23	Nadir - - - - - - - -	- -	- - -	199 59 60.0	66.9	71.5	61.2	60.8	49.3	61.608	30.8340		
	24				60.0	67.2	71.3	60.8	61.3	49.0				
	25	α Canis Majoris - - - - -	4	- - -	75 24 60.0	66.3	74.0	58.9	63.8	47.3	61.72	32.6597		30.578
	26	δ Geminorum - - - - - -	4	- - -	36 39 60.2	64.5	71.3	56.8	60.0	45.0	59.63	30.5058		.562
23	27	α Tauri - - - - - - - -	4	- - -	42 39 60.6	65.5	71.4	56.9	64.9	49.0	61.38	29.5550	30.7957	.284
	†28	Lalande, (9106) - - - - -	4½	- - -	14 59 59.6	64.8	70.7	54.9	61.6	46.5	59 68	25.7312		.280
	29	Nadir - - - - - - - -	- -	- - -	199 59 58.9	62.9	70.1	54.7	59.9	47.8				
	30				58.9	62.8	69.9	54.6	59.7	47.8				
											59.071	30.7808		
	31				59.0	63.3	70.1	54.9	60.2	47.5				
	32				58.7	63.5	69.9	55.0	60.1	47.5				
25	†33	Sun, S. L. - - - - - - - -	- -	— 32.8	77 59 57.7	62.1	69.4	52.1	62.9	46.2	58.40	30.8180	30.7972	30.076
	†34	Sun, N. L. - - - - - - - -	- -	+ 32.2	25 26.9	30.1	38.4	22.1	32.9	14.8	27.53	28.9576		
	35	Nadir - - - - - - - -	- -	- - -	199 59 59.8	63.1	69.1	54.9	61.1	49.9				
	36				.6	.1	68.9	55.1	60.8	.9	59.538	30.7898		
	37				.1	.4	69.0	54.9	61.1	.3				
	38				.1	.1	68.8	55.0	61.2	.6				
27	39	Nadir - - - - - - - -	- -	- - -	199 59 61.6	68.3	71.2	63.4	60.3	52.7			30.7779	
	40				.3	.2	.2	.5	.1	.9				
											62.767	30.8219		
	41				.1	.7	.2	62.7	.2	.6				
	42				.1	.8	.1	.5	.1	.6				
	†43	β Geminorum - - - - - -	4	- - -	30 29 60.7	64.9	71.2	56.3	61.4	49.2	60.62	30.3296		30.404
February 3	44	Nadir - - - - - - - -	- -	- - -	199 59 59.8	63.5	69.8	55.2	60.0	49.2			30.7777	
	45				.5	.8	70.0	.5	59.8	.2				
											59.683	30.7726		
	46				.5	64.0	69.5	.5	60.2	.5				
	47				.8	63.8	70.0	56.0	59.5	.8				
	48	β Orionis - - - - - - - -	4	- - -	67 14 59.0	65.8	71.3	56.8	63.8	49.2	60.98	30.2240		30.222
	49	β Tauri - - - - - - - -	4	- - -	30 24 58.5	61.8	68.8	53.8	62.0	45.3	58.37	30.6561		.216
	50	δ Orionis - - - - - - - -	4	- - -	59 19 60.0	65.2	72.2	55.9	65.9	50.3	61.58	32.7640		.212
	51	α Orionis - - - - - - - -	4	- - -	51 24 60.3	66.5	72.0	56.9	66.8	49.8	62.05	25.3090		.216
	52	α Canis Majoris - - - - -	4	- - -	75 24 60.0	65.4	73.0	57.8	65.0	45.3	61.08	32.5583		.212
6	†53	δ Ursæ Minoris, S. P. - - -	- -	+ 18.8	325 29 60.8	62.9	70.6	53.6	62.9	47.7	59.75	30.0136	30.7790	29.876
	†54	51 (Hev.) Cephei - - - - -	- -	— 35.1	331 39 61.0	64.3	72.9	56.0	63.1	48.2	60 92	31.4424	- -	.876
	55	ϵ Canis Majoris - - - - -	4	- - -	87 34 60.9	64.7	71.2	57.7	64.1	49.0	61.27	28.1829	- -	.874
	†56	δ Geminorum - - - - - -	4	- - -	36 39 61.1	65.1	72.1	57.2	64.1	48.9	61.42	32.5177	- -	.868
	†57	α^1 Geminorum - - - - - -	4	- - -	26 39 67.6	71.5	78.0	64.2	69.6	54.2	67.52	30.0574	- -	.866
	†58	α^2 Geminorum - - - - - -	4	- - -	- - -	--	--	--	--	--	- -	30.1018	- -	
	†59	α Canis Minoris - - - - -	4	- - -	53 14 59.2	63.5	69.7	55.0	62.1	47.0	59.42	29.1199	- -	
	†60	β Geminorum - - - - - -	4½	- - -	30 29 58.6	62.5	69.8	53.0	61.2	47.1	58.70	30.3195	- -	

No. for ref.	Thermometers: At.	Ex.	St.	Up.	Low.	Corrections for—: Inst.	Object.	Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
	°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	″		
1	36.0	23.7	40.0	31.0	34.3	— 2.47	— 42 7.20	45 25 21.06	+ 13 28 18.19		C.	Values of Mic. revolutions: ″
2	34.7	23.4		30.2	34.0	+ 24.61	+ 16.72	35 15 41.30	23 37 57.95	+ 15.90		January to March 1 - - 1r. = 62.819.
3	33.2	23.2				— 18.67	+ 31.01	46 50 12.27	12 3 26.98	18.44		March 1 to May 21 - - .811.
4			40.0	33.0	33.5							May 21 to June 30 - - .849.
5				36.3								July 1 to August 1 - - .845. September 20 to Nov. 30 62 818.
6				38.5	37.3							1. Mean hour angle of seven contacts.
7												2. Very unsteady.
8	34 2	23.0		34.5	37.0	— 1 25.48	— 7.47	13 3 27.58	45 50 11.67	8.67		3. Do.
9	33.5	22.6				+ 7.85	+ 11 29	30 25 19.22	+ 28 28 20.03	11.00		9. Unsteady.
10		22.7				2 53.44	50.22	59 18 46.99	— 0 25 7.74	14.83		11. Do.
11	32.1	22.7		28.2	32.2	+ 0.81	3 18.59	93 3 20.17	— 34 9 40.92	17.51		4 to 7. Mercury very much shaken by wind; observation poor.
12	35.2	22.8				— 1 20.53	18.22	36 8 57.04	+ 22 44 42.21	17.76	S	
13	35.5	22.3				2 43.56	46.25	56 18 3.16	2 35 36.09	24.20		
14	35.0	20.9				1 34.75	+ 44.88	55 24 10.95	3 29 28.30	23.44		
15	34.5	20.5				— 17.52	— 11.63	9 34 29.15	49 19 10.10	9.21		
16	33.4	20.0				+ 28.52	+ 17.27	35 15 44.37	+ 23 37 54.88	15.76		
17	32.3	19.5				— 59.51	1 23.42	72 50 23.71	— 13 56 44.46	25.88		
18	30.3	17.5			31.0	+ 1 18.44	+ 26.60	42 41 44.31	+ 16 11 54.94	15.70		
19	30.5	16.8				— 1 25.10	— 7.76	13 3 27.94	45 50 11.31	8.06		
20	30.5	17.0				+ 9.32	+ 11.71	30 25 21.53	+ 28 28 17.72	10.55		
21	29.5	17.6				1 8.04	53.68	60 12 2.82	— 1 18 23.57	15.46		
22	29.3	18.3				+ 43.96	38.92	51 31 23.93	+ 7 22 15.32	12.55		
23			32.8	33.0	32.0							
24												
25	29.5	17.6				— 1 56.29	1 31.90	75 24 37.33	— 16 30 58.08	8.70		
26	29.0	18.0				— 1 46.64	18.97	36 38 31.96	+ 22 15 7.29	4.98		
27	40.0	31.2				+ 1 17.95	+ 25.56	42 41 44.89	16 11 54.36	16.09	C.	
28	39.5	30.9		37.3	38.0	+ 5 18.14	— 5.26	15 5 12 56	+ 43 48 26.69	7.89		28. Other stars in field too faint for observation.
29				36.8	37.0							
30				38.5	38.7							
31												
32												
33	46.7	51.2				— 1.65	+ 1 25.70	78 1 22.45	— 18 51 25.60		C.	33 to 34. Mean hour angles of four contacts of each limb. Sun's observed semi-diameter, 16′ 17″.61.
34		52.7	44.0	48.5	46.0	+ 1 55.90	1 23.81	77 28 47.24				
35			44.0	49.0	46.7							
36				50.0	46.5							
37												
38												
39			48.7	38.2	37.5						C.	
40				40.0	39.5							
41												
42												
43	38.7	26.4	48.7	41.2	40.7	28.16	11.49	30 30 40.27	+ 28 22 58.98	2.55		43. Very unsteady.
44			42.0	41.8	40.0						S.	
45												
46												
47												
48	41.0	29.2				34.78	1 6.22	67 16 41.98	— 8 23 2.73	21.3t		
49	40.3	29.0				+ 7.64	11.27	30 25 17.28	+ 28 28 21.97	9.95		
50	40.0	28.7				— 2 4.77	50.15	39 18 46.96	— 0 25 7.71	17.83		
51	39.0	28.3				+ 5 43.53	37.62	51 31 23.20	+ 7 22 16.05	14.06		
52	37.0	27.0				— 1 51.85	+ 1 28.97	75 24 38.20	— 16 30 58.95	15.34		
53	40.5	32.1	43.7	40.5	40.5	+ 48.08	— 1 24.19	325 29 23.64	+ 86 35 44.39	+ 5.95	C.	53. Unsteady; mean hour angle of eleven bisections, at intervals of 15s.
54	40.5	32.1		40.5	40.3	— 41.68	— 1 7.59	331 38 11.65	+ 87 15 27.60	— 5.57		
55	38.7	31.3				+ 2 43.08	+ 2 25.58	87 40 9.93	— 28 46 30.68	+ 14.63		54. Unsteady; mean hour angle of 11 bisections.
56	38.5	31.2		35.7	38.0	— 1 49.22	18.02	36 38 30.22	+ 22 15 9.03	4.67		56. Unsteady.
57	37.8	30.6				+ 45.33	7.07	26 40 59.92	32 12 39.33	1.99		57. Unsteady; four bisections
68						42.54	7.07	26 40 57.13	32 12 42.12	1.99		58. Unsteady; three bisections.
59		30.7				1 44.22	39.61	53 17 23.25	5 36 16.00	5.01		59. Unsteady.
60						+ 28.90	+ 11.20	30 30 38.80	+ 28 23 0.45	+ 2.06		60. Do.

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angles.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1849.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Rev.	r.	In.
February 6	1	Nadir - - - - - - - -	- -	- - -	199 59 60.8	66.8	71.8	59.8	62.1	51.1			30.7790	
	2				.9	.5	.9	.8	.0	.1				
	3				.9	.9	.7	.9	.2	50.4	62.058	30.8118		
	4				.9	67.1	.9	60.1	.0	.8				
	5	ε Hydræ - - - - - - -	4	- - -	51 54 60.7	66.1	72.2	58.9	64.8	50.0	62.12	30.7439	- -	29.866
	†6	ι Ursæ Majoris - - - -	4	- - -	10 14 60.1	66.1	72.9	57.3	63.2	47.8	61.23	30.6767	- -	.864
	†7	Moon, N. L. - - - - -	- -	− 34.9	44 59 59.8	64.1	70.8	55.7	61.4	46.6	59.73	31.3181	- -	.864
	†8	Moon, S. L. - - - - -	- -	+ 27.6	45 29 59.6	65.1	71.5	57.0	62.8	47.1	60.52	28.6960		
	†9	Jupiter, S. L. - - - -	4	- - -	42 19 58.2	64.5	70.2	55.2	62.8	47.6	59.76	31.7953	- -	.860
	†10	Jupiter, N. L. - - - -	4	- - -	- - -	--	--	--	--	--	- -	32.5048		
	11	Leonis (3250) - - - -	4	- - -	46 54 58.9	63.5	70.1	55.0	62.5	46.2	59.37	30.3877	- -	.860
	12	ε Leonis - - - - - -	4	- - -	34 24 57.8	63.4	70.2	54.8	59.8	45.5	58.58	30.2061	- -	.860
7	13	β Tauri - - - - - -	4	- - -	30 24 59.6	63.2	70.8	55.3	62.0	48.0	59.82	30.6837	30.7986	30.332
	14	ε Orionis - - - - - -	4	- - -	60 9 60.2	63.3	71.2	56.0	63.3	47.8	60.30	29.6424	- -	.332
	15	Nadir - - - - - - - -	- -	- - -	199 59 59.8	64.0	71.0	58.0	60.5	49.9				
	16				60.0	.2	.2	.0	61.0	.9	61.220	30.8180		
	17				.2	66.8	70.8	59.8	62.5	50.0				
	18				.3	67.2	71.2	.6	63.1	.3				
10	†19	Venus, S. L. - - - - -	4	- - -	55 29 61.4	63.9	72.1	58.1	64.2	48.4	61.35	30.3456	30.7896	30.086
	†20	Venus, N. L. - - - - -	4	- - -	- - -	--	--	--	--	--	- -	30.6741		
	21	Nadir - - - - - - - -	- -	- - -	189 59 60.2	65.4	71.2	57.8	62.2	47.7				
	22				.3	.6	.4	.9	61.9	.9				
	23				58.9	.3	.1	.9	.4	.9				
	24				.9	.4	.0	.9	.4	.9	60.416	30.7961		
	25				59.1	.0	70.4	.2	60.9	.6				
	26				.1	64.8	70.5	.2	61.2	.6				
	†27	δ Geminorum - - - - - -	4	- - -	36 39 60.2	64.5	70.2	56.4	62.2	46.1	59.93	32.5074	- -	29.976
	28	$α^1$ Geminorum - - - -	4	- - -	26 39 53.6	57.6	63.9	48.9	53.6	38.6	52.70	29.8395	- -	.956
	29	$α^2$ Geminorum - - - -	4	- - -	- - -	--	--	--	--	--	- -	29.8786		
	30	β Geminorum - - - - -	4	- - -	30 29 59.3	63.1	69.8	55.0	61.5	46.0	59.12	30.3317	- -	.963
16	†31	Sun, S. L. - - - - - -	- -	− 24.5	71 19 60.0	68.2	72.8	59.0	64.0	47.3	61.88	30.1757	30.8215	.974
	†32	Sun, N. L. - - - - - -	- -	+ 38.0	70 44 59.8	68.6	71.3	60.3	65.3	47.2	62.08	28.7994	- -	.970
	33	Nadir - - - - - - - -	- -	- - -	199 59 59.8	66.3	71.5	59.8	60.2	47.8				
	34				60.1	.3	72.0	.9	.6	.3				
	35				59.5	.3	71.2	60.0	.3	.6	60.958	30.8369		
	36				59.4	.6	71.8	.4	.8	.5				
17	†37	Sun, S. L. - - - - - -	- -	− 28.2	70 59 61.2	68.1	73.1	59.9	66.0	49.5	62.97	32.1913	30.8232	.996
	†38	Sun, N. L. - - - - - -	- -	+ 39.0	70 24 60.6	67.2	72.5	59.1	65.6	49.1	62.35	29.7447		
	39	Nadir - - - - - - - -	- -	- - -	199 59 59.5	64.8	70.7	57.7	60.2	47.8				
	40				.7	.8	.2	.9	.4	.8				
	41				.2	.9	.2	58.0	61.0	48.0	60.229	30.8269		
	42				.8	.9	.7	.1	.2	.0				
24	†43	Sun, N. L. - - - - - -	- -	− 27.2	67 54 59.5	63.8	70.3	55.1	63.2	47.7	59.93	31.2261	30.8263	30.254
	†44	Sun, S. L. - - - - - -	- -	+ 40.0	68 29 59.6	63.8	70.4	55.7	62.4	47.9	59.97	33.7336		
	45	Nadir - - - - - - - -	- -	- - -	199 59 60.1	63.7	69.5	56.5	60.4	48.8				
	46				.0	.9	.6	.6	.2	49.0	59.896	30.8247		
	47				.1	64.2	.7	57.0	.6	48.6				
	48				59.9	.2	.6	56.4	.1	.8				
Mar. 10	49			− 0 11.0	335 29 61.4	63.1	69.7	53.3	63.4	49.5	60.07	30.173	30.8186	29.832
	50			+ 19.0								.175		
	51			0 49.0								.172		
	52			1 19.0								.168		
	53			49.0								.166		
	54			2 19.0								.160		
	55	δ Ursæ Minoris, S. P. - -	4½	49.0								.156		
	56			3 19.0								.152		
	57			49.0								.150		
	58			4 19.0								.146		
	59			49.0								.142		
	60			+ 5 19.0								.132		

No. for ref.	THERMOMETERS. At.	Ext.	St.	Up.	Low.	CORRECTIONS FOR— Inst.	Object.	Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
	°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	′ ″		
1			43.8		37.8						C.	
2				37.8	38.0							
3												
4												
5	36.8	30.5		36.5	36.7	+ 2.20	+ 37.61	51 55 41.93	+ 6 57 57.32	+ 0.20		
6	36.5	30.7				+ 1 9.24	— 10.36	10 16 0.11	48 37 39.14	— 3.65		6. Unsteady.
7	36.5	30.5		36.2	37.0	— 29.37	24 7.97	44 35 21.89	14 2 13.38			7 to 8. Moon's semi-diam., 16′ 4″.08 ; applied 0″.26 cor. for defective illumination of N. limb. Mean hour angle of 3 contacts of each limb.
8						+ 2 7.34	— 25 37.31	45 7 29.95				
9	36.5	31.0				— 1 3.83	+ 24.02	42 19 19.94	16 34 41.59			
10						— 1 48.41	24.03	42 18 35.37				9. Unsteady.
11	36.5	30.8				+ 24.58	30.65	46 55 54.60	11 57 44.65	3.23		9 to 10. Jupiter's semi-diam 22″.28. Mean of 4 contacts S. limb ; 3 contacts N. limb.
12	36.0	31.0	42.8	36.2	37.5	35.99	15.52	34 25 50.09	24 27 49.16	— 3.91		
13	37.2	23.9				7.22	11.44	30 25 18.48	+ 28 28 20.77	+ 9.70	S.	
14	37.5	23.5				1 12.63	52.53	60 12 5.46	— 1 18 26.21	17.92		
15			42.0	41.8	40.0							
16												
17												
18												
19	40.5	37.4		40.5	39.0	27.89	36.95	55 31 6.19	+ 3 22 43.78		C.	19. Unsteady.
20						+ 7.26	36.13	55 30 44.74				
21			38.5	34.0	35.3							19 to 20. Venus' semi-diam., 10″.72 ; applied 0″.82 cor. for defective illumination of N limb. Mean of 4 contacts S. limb ; 3 of N. limb.
22				36.0	36.3							
23				36.8	37.4							
24												
25												
26												
27	35.5	29.5	39.0		33.2	— 1 47.91	18.16	36 38 30.18	22 15 9.07	4.44		27. Unsteady ; hazy cool south wind blowing into room.
28	35.4	29.4		32.0	33.8	+ 59.68	7.12	26 40 59.50	32 12 39.75	1.54		
29						57.27	7.12	26 40 57.11	32 12 42.14	1.54		
30	35.2	29.4		32.0	34.0	+ 28.76	11.27	30 30 39.15	+ 28 23 0.10	1.68		
31	24.5	22.2				— 22.61	1 10.19	71 20 49.46	— 12 10 54.75		S.	31 to 32. Sun's semi-diam., 16′ 15″.46. Mean hour angles of 2 contacts of each limb.
32	24.8	23.2	30.0	29.5	28.5	+ 2 7.70	1 8.77	70 48 18.55				
33			30.0	32.5	29.0							
34												
35												
36												
37	30.5	26.9				— 1 26.35	1 8.50	70 59 45.12	11 49 52.23			37 to 38. Very unsteady; poorly defined through light clouds. Sun's observed semi-diam., 16′ 13″.64. Mean hour angle of 4 contacts of S. limb ; 2 of N. limb.
38		28.0	29.0	31.5	29.3	+ 1 8.32	1 7.17	70 27 17.84				
39			36.7	26.5	28.4							
40				28.5	30.0							
41												43. Very unsteady ; poorly defined ; S. limb obscured by clouds.
42												
43	40.0	42.4				— 25.53	0 59.63	67 55 34.03	— 9 18 7.16			43 to 44. Sun's semi-diam., 16′ 12″.38. Mean hour angles of 4 contacts of each limb.
44		42.5	36.5	41.5	38.0	3 2.01	+ 1 0.83	68 27 58.79				
45			36.5	41.6	38.0							
46				42.5	38.0							
47												
48												
49	50.0	43.8	46.7	49.0	47.0	40.66					S.	
50						40.52						
51						40.63						
52						40.75						
53						40.69						
54						40.81						
55						40.81	— 1 22.03	325 29 18.50	+ 86 35 39.25	+ 11.98		
56						40.63						
57						40.33						
58						40.10						
59						39.81						
60						— 39.83						

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	Microscopes. A.	B.	C.	D.	E	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1849.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
Mar. 10	1	Nadir	- -	- - -	199 59 59.3	63.2	68.5	56.5	59.0	50.5			30.8186	
	2				.5	.2	.8	.2	58.8	.8	59.525	30.8110		
	3				.5	.3	.0	.3	59.3	.5				
	4				60.0	.0	.3	.6	.3	.2				
	5	ε Canis Majoris	4	- - -	87 39 60.2	63.5	68.2	56.2	62.0	50.8	60.15	32.8689		29.880
	6	α² Geminorum	4	- - -	26 44 60.8	64.6	69.8	58.0	61.9	50.2	60.88	34.8297		.832
	7	β Geminorum	4	- - -	30 29 59.5	63.0	67.9	55.8	62.2	51.0	59.90	30.3898		.832
17	† 8	Sun, N. L.	- -	− 27.8	59 44 63.4	64.4	68.9	57.4	60.9	53.5	61.42	28.0530	30.8143	
	† 9	Sun, S. L.	- -	+ 38.2	60 19 62.2	62.1	67.5	56.3	59.3	52.1	59.92	30.7253		.888
	10	Nadir	- -	- - -	199 59 60.3	60.9	63.4	56.5	53.7	51.5				
	11				.5	.5	.9	.9	.4	.7	57.867	30.7803		
	12				.3	.7	.9	57.0	.9	.8				
	13				.5	.7	.9	.1	.5	52.2				
19	†14	Nadir	- -	- - -	199 59 59.6	62.4	65.1	59.0	53.6	51.0			30.8083	
	15				.4	.5	.1	.0	.2	.0				
	16				57.9	61.5	64.0	58.1	52.4	50.0	57.578	30.7698		
	17				58.2	.6	63.8	.0	.4	.4				
	18				57.6	.1	63.2	57.4	.1	.1				
	†19				.8	.1	.3	.7	.1	.1				
	†20			− 2 18.0	327 24 59.9	62.5	65.3	57.9	55.5	49.7	58.51	30.478		30.166
	21			1 58.0	60.5	62.1	65.1	58.0	55.4	50.2		.478		.166
	22			1 38.0								.482		
	23			1 18.0								.487		
	24			− 0 58.0								.488		
	25	Polaris, S. P.		+ 0 35.0								.486		
	26			1 32.0								.488		
	27			1 52.0								.483		
	28			2 12.0								.475		
	29			2 32.0								.475		
	†30			2 52.0								.478		
23	†31	Venus, S. L.	- -	17.0	37 44 62.8	60.8	66.6	59.1	57.6	54.1	60.17	34.3257	30.8056	.398
	†32	Venus, N. L.	- -	+ 36.5								34.8392		
	33	Nadir	- -	- - -	199 59 61.6	62.3	66.9	59.4	55.1	53.7				
	34				.4	.2	.9	.6	.2	.9				
	35				.3	.8	.8	60.1	.1	.9	59.912	30.8042		
	36				.1	.8	.7	.0	.1	54.0				
	37	ε Hydræ	4	- - -	51 54 58.9	61.0	63.1	57.7	54.3	51.5	57.75	30.6812		30.376
	38	ι Ursæ Majoris	4	- - -	10 14 60.9	63.0	66.4	59.4	56.5	51.7	59.77	29.8119		.370
	39				60.6	63.3	66.8	59.8	57.0	51.8				
	†40	Jupiter, S. L.	4	- - -	40 59 59.8	61.4	65.0	58.8	54.1	53.6	58.78	32.9973		.366
	†41	Jupiter, N. L.	4	- - -								33.6615		
24	42	Polaris	3	− 10 16.0	330 24 58.0	58.6	66.7	54.8	53.2	49.9	56.87	31.302	30.8139	.236
	43			8 16.0								.322		.224
	44			6 16.0								.282		.218
	45			4 16.0								.311		
	46			2 16 0								.291		
	47		4	− 0 26.0								.290		
	48			+ 1 34.0								.282		
	49			3 34.0								.296		
	50			5 34.0								.299		
	51			7 34.0								.332		
	52		5	+ 9 25.0								.342		
	53	Nadir	- -	- - -	199 59 58.6	57.2	63.2	54.5	51.0	49.9			30.8111	
	54				.6	.5	.3	.0	1.0	.8				
	55				.2	59.0	4.0	.2	3.0	50.5	56.125	30.7494		
	56				.0	.2	.8	.5	3.0	.0				
	57	ε Leonis	4	- - -	34 24 60.0	60.7	65.3	55.8	66.0	51.8	58.27	30.2612	30.8105	.14[illegible]
	58	α Leonis	4	- - -	46 9 60.0	61.3	66.3	55.8	59.3	50.5	58.87	29.6765		.1[illegible]

ERMOMETERS.	CORRECTIONS FOR—		Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
			° ′ ″	° ′ ″	″		
						S.	
			87 40 14.91	− 28 46 35.66	+ 19.21		
			26 40 55.86	+ 32 12 43.39	− 0.73		
			30 30 37.83	+ 28 23 1.42	− 0.26		
			59 48 36.56 60 20 48.95	− 1 11 3.51		C.	8–9. Sun's semi-diam., 16′ 6″.19. 9. Through clouds, very faint. Mean hour angles of 4 contacts of each limb.
							Mar. 17. Wind fresh; mercury very unsteady.
							14, 19. App. error of coll., 2″ E.
							20 to 23. Through mist.
			327 24 1.05	+ 88 30 21 80	+ 14.34		
			37 41 33.02 37 40 59.99	21 12 23.90			31–32. Venus' semi-diam., 16″.52; applied 1″.26 cor. for defective illumination of N. limb. Mean hour angles of 2 contacts of each limb.
			51 55 42.81	6 57 56.44	+ 1.11	C.	
			10 15 51.93	48 37 47.32	− 11.78		
			40 58 3.39 40 57 21.65	17 55 56.73			40–41. Jupiter's semi-diam., 20″.87; 4 observations S. L., 3 of N. L.
						S.	March 24. No dependence to be placed on Nadir observation; too much moving about grounds.
			330 23 20.43	89 30 18.85	+ 15.79		
	+ 54.50	+ 15.02	34 25 47.79	24 27 51.46	− 7.39		
54.1	+ 1 11.23	+ 28.76	46 11 38.86	+ 12 42 0.39	− 5.60		

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. zero.	Barometer.
1849.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
March 24	1	Nadir - - - - - - -	- -	- - -	199 59 59.3	61.0	64.2	56.7	54.3	51.8				
	2				.3	.0	.8	.9	.3	.9				
	3				.0	.1	.5	57.3	55.3	.9	58.042	30.7793		
	4				.5	.1	.4	56.9	54.8	.9				
29	5	δ Leonis - - - - - - -	4	- - -	37 29 60.4	60.9	64.2	56.4	57.1	50.9	58.32	28.4061	30.8223	30.054
	†6	γ Cephei, S. P. - - - - -	- -	+ 7.9	315 44 60.3	58.5	63.9	55.0	55.5	52.0	57.53	32.7130		.054
	7	Nadir - - - - - - -	- -	- - -	199 59 61.7	63.8	66.4	60.5	57.1	54.3				
	8				.5	.8	.2	.7	.1	.1				
	9				.5	.9	65.9	.7	.0	.1	60.562	30.8313		
	10				.8	.5	.9	.8	.0	.2				
	11	β Libræ - - - - - - -	4	- - -	67 39 61.5	62.2	67.4	59.4	58.6	53.9	60.50	28.9925		.026
31	†12	Venus, S. L. - - - - - -	4	- - -	35 29 60.6	60.1	61.9	55.8	55.6	53.8	57.97	31.2065	30.8274	29.998
	†13	Venus, N. L. - - - - -	4	- - -								31.7604		
	14	δ Geminorum - - - - - -	4	- - -	36 39 60.7	59.1	61.5	54.2	54.1	53.0	57.10	32.4904		.958
	†15	Moon, N. L. - - - - -	- -	− 1.4	41 4 56.1	56.4	56.0	51.4	49.9	52.6	53.73	29.0132		.958
	16	Geminorum, (2551) - -	4	- - -	34 9 61.5	60.2	62.2	55.7	54.8	55.1	58.25	32.4837		.952
	†17	Nadir - - - - - - -	- -	- - -	199 59 60.0	57.9	59.9	54.6	50.2	55.2				
	18				59.8	.9	.9	.6	.2	.4				
	19				.8	58.5	.9	55.2	.9	.6	56.467	30.7712		
	†20				.6	.5	.9	.1	.7	.9				
	21	ε Hydræ - - - - - - -	4	- - -	51 54 61.1	59.1	60.5	55.4	54.1	55.5	57.62	30.6548		.970
	†22	Jupiter, S. L. - - - - -	4	- - -	40 54 59.2	63.8	60.2	57.9	53.0	55.3	58.23	32.2699		.964
	†23	Jupiter, N. L. - - - - -	4	- - -								32.9143		
April 3	†24	Sun, S. L. - - - - - -	- -	− 29.8	53 39 63.7	62.3	66.8	60.1	56.1	54.9	60.65	29.4245	30.8211	
	†25	Sun, N. L. - - - - - -	- -	+ 31.5	53 9 66.5	64.8	68.7	63.1	58.9	57.8	63.30	31.4644		
	26	Nadir - - - - - - -	- -	- - -	199 59 65.5	62.1	67.9	62.1	55.0	57.3				
	27				.2	.2	.9	.1	.0	.5				
	28				64.8	.6	.9	.1	.0	.9	61.650	30.8314		
	29				.7	.3	.6	.0	.0	.9				
	†30	Venus, N. L. - - - - -	4	- - -	34 49 63.3	60.1	63.8	60.0	52.2	55.4	59.13	32.0946		30.076
	†31	Venus, S. L. - - - - -	4	- - -								31.5146		
5	†32	Nadir - - - - - - -	- -	- - -	199 59 64.0	61.2	64.1	61.9	51.8	59.9			30.8165	
	33				.0	.2	.1	.9	52.0	60.1				
	34				.1	.8	.3	62.1	.1	.1	60.621	30.8264		
	†35				.0	.8	.2	.0	.1	.1				
	36	ι Ursæ Majoris - - - - -	4	- - -	10 14 60.5	59.1	61.4	58.4	51.9	54.9	57.70	29.8154		30.110
	†37	Jupiter, S. L. - - - - -	4	- - -	40 54 61.1	59.2	62.6	59.0	52.1	58.3	58.72	33.1917		.110
	†38	Jupiter, N. L. - - - - -	4	- - -								33.8268		
	†39	Moon, N. L. - - - - - -	- -	+ 0.3	57 24 62.1	61.9	63.9	62.0	54.1	58.5	60.42	31.9770		.172
	†40	Virginis, (4145) - - - - -	4	- - -	58 44 62.0	62.8	64.9	62.0	55.1	59.0	60.97	33.0680		.176
6	†41	Sun, S. L. - - - - - -	- -	− 31.3	52 34 60.0	58.2	63.2	57.5	50.2	53.2	57.05	32.5112	30.8179	.368
	†42	Sun, N. L. - - - - - -	- -	+ 37.0	52 4 60.8	59.3	64.8	59.6	53.3	54.3	58.68	34.4933		
	43	Nadir - - - - - - -	- -	- - -	199 59 61.2	57.1	63.3	57.2	49.2	53.3				
	44				60.8	56.8	.8	56.8	.5	.5				
	45				.8	58.2	.3	57.0	.8	.5	57.046	30.7709		
	46				61.0	.2	.8	.0	50.2	.8				
	†47	Jupiter, S. L. - - - - -	2	- - -	40 54 61.0	59.2	65.0	58.0	53.2	56.6	58.83	33.1056	30.8221	.302
	†48	Jupiter, N. L. - - - - -	6	- - -								33.7937		
	49	α Hydræ - - - - - - -	4	- - -	66 54 59.8	57.8	64.2	56.3	51.2	53.3	57.10	32.3750		.294
	50	ε Leonis - - - - - - -	4	- - -	34 24 59.5	58.0	62.3	57.0	49.3	52.3	56.40	30.2403		.292
	51	Nadir - - - - - - -	- -	- - -	199 59 59.8	59.3	63.8	59.6	49.5	54.2				
	52				61.2	.6	64.2	.5	.5	.2				
	53				60.0	.5	63.0	.4	.8	53.8	57.717	30.7858		
	54				.2	60.0	62.5	.2	.7	.5				
7	†55	Sun, S. L. - - - - - -	- -	− 34.2	52 9 61.5	60.7	63.5	60.0	51.9	55.6	58.87	30.1594	30.8040	.168
	†56	Sun, N. L. - - - - - -	- -	+ 28.7	51 39 60.4	59.5	62.4	59.3	51.8	54.9	58.05	32.1429		
	57	Nadir - - - - - - -	- -	- - -	199 59 61.1	59.3	62.9	59.2	49.8	55.6				
	58				.0	.3	63.0	.5	50.1	.8				
	59				60.6	.7	62.5	.9	49.9	.5	58.050	30.7729		
	60				.7	.9	.5	60.0	.9	.5				

No. for ref.	Thermometers. At.	Thermometers. Ext.	Thermometers. St.	Thermometers. Up.	Thermometers. Low.	Corrections for— Inst.	Corrections for— Object.	Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	Remarks.
	°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	′ ″		
1			51.0	55.0	51.5						S.	
2												
3												
4												March 29. One of wires in Mic F. stranded; held tight by a very minute fibre.
5	51.7	50.9			50.4	+ 2 31.76	+ 18.42	37 32 48.50	+ 21 20 50.75	— 10.60		
6	51.7	50.0		50.7	50.0	— 1 58.75	— 2 0.59	315 40 58.19	+ 76 47 18.94	+ 23.70		6. Mean hour angle of seven bisections each side of the meridian.
7			49.2	48.8	48.8							
8				50.0	50.2							
9												
10												
11	50.2	45.9	49.2	49.5	49.0	+ 1 54.92	+ 1 4.53	67 42 59.95	— 8 49 20.70	— 11.94		
12	61.5	67.5	53.8	63.2	57.0	— 23.81	10.94	35 29 45.10	+ 23 24 12.10			12–13. Venus' semi-diam., 17″.95; applied 1″.10 cor. for defective illumination of N. limb; 4 observations of S. L., 3 of N. L.
13						58.60	9.82	35 29 9.19				
14	63.0	63.3	55.0	61.7	57.0	— 1 44.45	+ 16.93	36 38 29.58	22 15 9.67	+ 2.90		
15	62.8	62.5		61.7	57.3	+ 1 54.03	— 4 34.19	41 2 13.57	17 51 25.68			
16	62.8	61.4				— 1 44.03	+ 14.32	34 8 28.54	24 45 10.71	0.05		
17			55.3	61.5	57.0							March 31. 17 to 20. Mercury tremulous; too many persons moving about building.
18				62.5	57.3							
19												15. Mean hour angle of seven observations.
20												
21	61.5	58.6		60.0	57.8	+ 10.85	35.62	51 55 44.09	6 57 55.16	+ 1.11		
22	61.5	60.0		61.0	58.0	— 1 30.60	21.14	40 53 48.77	18 0 10.72			22–23. Jupiter's semi-diam., 20″.24; 4 observations of S. L., 3 of N. L.
23						— 2 11.07	21.13	40 53 8.29				
24						+ 1 27.26	33.49	53 42 1.40	5 27 40.47			24 to 25. Very unsteady; Sun's semi-diam., 16′ 2″.62.
25						— 39.92	32.78	53 9 56.16				
26			54.0	58.2	54.4							Mean hour angle of 4 observations of each limb.
27				59.0	54.2							
28												
29												30–31. Venus' semi-diam., 18″.34; applied 1″.14 cor. for defective illumination of N. limb; 4 observations of N. limb. 3 of S. limb.
30	57.3	66.3		60.7	55.0	1 19.09	9.14	34 48 49.18	24 4 31.73			
31						— 0 43.56	+ 10.29	34 49 25.86				
32			59.0	61.8	59.3						C.	April 5 and 7. App. error of coll., 6″ E.
33				62.8	59.5							
34												
35												
36	61.0	51.9	59.0	61.8	59.3	+ 1 2.88	— 9.98	10 15 50.60	48 37 48.65	— 13.42		
37	61.0	52.0		57.5	58.5	— 2 29.19	+ 21.58	40 52 51.01	18 1 8.10			37–38. Very unsteady; 4 observations of S. L., 3 of N. L. Jupiter's semi-diam., 19″.96.
38						3 9.09	+ 21.57	40 52 11.10				
39	55.0	45.7	59.0	54.8	52.5	2 15.75	— 17 49.89	57 5 57.59	1 47 41.66			39. Unsteady; mean hour angles of 7 observ's.
40	54.4	45.4				2 21.41	— 47.36	58 43 26.92	0 10 12.33	— 9.92		40. Very unsteady.
41	52.3	59.3			55.0	1 46.85	+ 32.39	52 33 42.59	6 35 57.90		S.	41–42. Sun's semi-diam., 16′ 1″.25. Mean hour angles of 3 observations of each limb.
42						3 50.28	31.70	52 1 40.10				
43			57.3	63.3	57.0							
44												
45												
46												
47	58.0	53.0		53.8	55.2	2 23.43	21.68	40 52 57.08	+ 18 1 3.79			47–48. Jupiter's semi-diam., 21″.62. Mean of 3 observations of each limb.
48						3 6.66	21.67	40 52 13.84				
49	57.0	51.0				— 1 37.53	1 2.63	66 54 22.20	— 8 0 42.95	+ 1.93		
50	56.2	53.0				+ 36.54	15.03	34 25 47.97	+ 24 27 51.28	— 8.64		
51				55.0								
52												
53												
54												
55	59.2	72.1				+ 39.96	30.78	52 11 9.61	+ 6 58 32.19		C.	55–56. Very unsteady; badly defined. Sun's semi-diam., 16′ 2″.54. Mean hour angles of 4 observations of each limb.
56				62.5	58.0	— 1 23.65	+ 30.12	51 39 4.52				
57				62.3	58.0							
58				63.0	58.0							
59												
60												

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B	C.	D	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1849.			No.	m s.	° ′ ″	″	″	″	″	″	″	Revs	r.	In.
April 11	† 1	Jupiter, S. L.	2	. . .	40 54 59.0	56.8	61.6	56.4	49.2	55.0	56.33	32.4462	30.8123	30.148
	† 2	Jupiter, N. L.	5½	. . .								33.0932		
	3	Nadir	. .	. . .	199 59 61.3	62.5	65.0	63.8	50.9	55.3				
	4				.5	.6	.2	.8	.4	.6				
	5				60.8	.8	.2	.8	.8	.8	59.825	30.6672		
	6				.9	.5	.4	.5	.6	.8				
12	† 7	Sun, S. L.	. .	– 33.7	50 19 63.5	61.5	66.5	61.4	53.2	58.1	60.70	30.8028	30.6523	.268
	† 8	Sun, N. L.	. .	+ 21.0	49 47 36.8	33.9	38.4	35.6	29.8	30.4	34.15	30.4181		
	9	Nadir	. .	. . .	199 59 62.1	59.1	63.7	60.6	48.7	56.8				
	10				.0	58.8	.6	.8	.5	.5	58.500	30.6284		
	11				.1	.9	.8	.9	49.5	.4				
	12				61.9	59.1	.5	.9	.2	.6				
	†13	Venus, S. L.	4	. . .	33 24 62.8	60.0	64.5	59.9	51.8	56.3	59.22	32.9487		.210
	†14	Venus, N. L.	4	. . .								33.6326		
19	†15		4	. . .	34 54 56.3	57.9	61.5	55.2	47.4	47.2	54.25	38.4063	30.8026	29.816
	16		3									34.1714		
	17	B. Z., 412, 151	4									28.5875		
	18		3									27.6634		
	†19	B. Z, 412	5									38.6154		
	20	Nadir	. .	. . .	199 59 58.2	60.1	63.9	60.0	47.8	51.6				
	21				.2	.1	.5	.0	.8	.8	57.008	30.7550		
	22				.6	.4	.7	.1	48.0	.9				
	23				.6	.2	.9	.1	47.9	.8				
20	24	α Leonis	4	. . .	46 9 60.8	60.0	65.8	56.3	53.2	50.9	57.83	30.6807	30.8078	29.992
	25	Nadir	. .	. . .	199 59 60.0	59.8	65.4	57.8	50.7	51.4				
	26				59.8	.8	.8	.8	.4	.8	57.555	30.7688		
	27				.8	60.2	.3	.9	.5	.8				
	28				60.0	.2	.3	.9	.0	.8				
	†29	B. Z, 412	5	. . .	36 9 60.8	61.0	67.0	59.5	52.3	51.3	58.65	48.7649		
	†30		4	. . .	35 9 60.8	60.8	67.2	58.5	51.9	50.0	58.20	52.8188		30.052
	†31	B. Z., 412	2									24.0106		
	†32	B. Z., 412	5									27.3650		
30	†33		4	. . .	62 64 57.8	54.2	58.8	52.5	45.5	48.8	52.93	17.4251	30.8074	.062
	†34		2									33.0406		
	†35		2									15.2929		
	†36	Weisse X, 801	3	. . .	59 39 57.2	54.9	60.5	53.8	45.5	51.2	53.85	33.2703		
	†37		4									43.8844		
	†38	Weisse X, 859	3									34.4967		.060
	†39		4									39.9288		
	†40	Lalande, (21026)	4									28.8609		
	41	β Leonis	4	. . .	43 29 59.0	56.0	60.5	53.9	45.8	51.0	54.37	32.2501		.062
	42	β Corvi	4	. . .	81 19 56.8	57.2	60.0	54.0	45.8	49.0	53.80	25.1270		.060
	43			– 9 15.8	327 24 56.5	56.3	60.8	53.8	45.8	49.3		30.592	30.8086	.060
	44			7 15.8								.618		
	45			5 15.8								.630		
	46			3 15.8								.643		
	47			– 1 15.8								.651		
	48	Polaris, S. P.	4	+ 0 33.2							53.71	.656		.060
	49			2 33.2								.656		
	50			4 33.2								.642		
	51			6 33.2								.602		
	52			8 33.2								.600		
	53			+ 10 18.2	327 24 57.0	54.9	61.0	53.9	46.0	49.2		.580		.062
	54	α Bootis		. . .	38 54 59.3	57.2	63.0	56.8	49.7	53.0	56.50	30.6061	30.8074	.060
	55	Nadir	. .	. . .	199 59 60.0	59.0	63.0	59.2	47.2	53.5				
	56				.0	.0	63.2	.4	.2	54.0	57.000	30.7596		
	57				.0	58.9	62.8	.3	.3	53.2				
	58				58.8	59.2	63.2	.5	.3	.8				
	59	ε Bootis	4	. . .	31 9 58.3	56.5	62.0	55.8	47.8	51.7	55.35	30.0745		.054
	60	β Ursæ Minoris	4½	. . .	314 9 60.0	58.9	66.0	57.3	49.9	52.9	57.50	32.6936		.048

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1849.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
April 30	1	β Libræ	4	. . .	67 39 60.0	59.2	65.2	59.2	49.3	53.8	57.78	28.8823		29.042
May 2	† 2	Weisse X, 456	6	. . .	62 39 60.0	55.8	58.8	52.2	45.1	51.2	53.85	46.9924	30.7736	.418
	† 3	Weisse X, 517	4									15.4872		
	† 4	Weisse X, 637	4									40.1337		
	† 5	Weisse X, 801	6	. . .	59 39 57.5	54.6	58.9	51.3	45.2	51.0	53.08	33.1877		.422
	† 6	Weisse X, 859	4									34.4776		
	† 7	Lalande, (21026)	4									28.8329		
	† 8	γ Cephei, S. P.	3½	− 33.3	315 39 58.2	50.5	57.8	49.3	42.9	49.3	51.33	27.8975		.436
	9	β Corvi	4	. . .	81 19 59.8	58.2	61.8	55.3	46.3	52.5	55.65	25.2226		.418
	†10	Bes. Z., 460	4	. . .	36 14 59.3	56.2	61.2	55.8	45.2	51.0	54.78	25.2485		.432
	†11		4									38.4665		
	†12		4									35.0515		
	†13	Bes. Z., 412	4	. . .	34 54 59.5	57.8	62.2	55.2	45.8	52.2	55.45	34.1901		.442
	†14	Anon.	4									28.6016		
	†15	Bes. Z., 412	5									38.6156		
	16			− 9 33.0	327 14 59.5	56.0	61.9	54.8	46.0	51.3		30.561	30.7752	30.424
	17			7 33.0								.592		
	18			5 33.0								.602		
	19			3 33.0								.632		
	20			− 1 33.0								.642		
	21	Polaris, S. P.	4	+ 0 23.0							54.808	.658		.422
	22			2 23.0								.641		
	23			4 23.0								.628		
	24			6 23.0								.610		
	25			8 23.0								.595		
	26			+ 10 3.0	327 24 59.0	56.0	61.8	54.8	45.3	51.3		30.563		.422
	27	Nadir	. .		199 59 60.0	60.8	63.8	61.5	45.2	53.8			30.7736	
	28				.0	61.2	.8	.3	.5	54.3				
	29				59.3	60.8	.2	.2	.3	53.8	57.446	30.7331		
	30				.5	61.0	.8	.2	.8	.8				
3	†31	Sun, N. L.	. .	− 33.3	42 49 60.8	59.4	62.4	58.1	47.4	53.1	56.87	30.3335	30.7762	
	†32	Sun, S. L.	. .	+ 41.8	43 19 62.7	60.1	62.6	58.1	47.6	54.2	57.55	28.6251		.472
	33	Nadir	. .	. . .	199 59 64.6	61.0	64.8	62.2	48.0	58.7				
	34				.5	60.9	.9	.0	47.8	.6				
	35				.9	61.2	65.1	.7	.5	.8	59.933	30.7751		
	36				.8	.1	.1	.6	.8	.8				
	†37	Venus, S. L.	4	. . .	34 29 63.8	61.8	65.8	61.6	50.1	57.1	60.03	30.7367		.456
	†38	Venus, N. L.	4	. . .	- - -	--	--	--	--	--	- -	31.5803	30.7755	
9	39	Nadir	. .	. . .	199 59 60.8	58.3	60.1	59.2	45.0	56.0				
	40				.9	.0	.3	.2	44.8	.0				
					.8	.3	59.9	.2	45.0	.0	56.550	30.7205		
	41													
	42				.8	.3	.9	.1	.0	.3				
	43			− 8 23.0	327 24 58.3	53.5	58.2	54.5	43.2	49.9		30.605	30.7767	29.992
	44			6 23.0								.622		
	45			4 23.0								.632		
	46			− 2 23.0								.655		
	47	Polaris, S. P.	4	+ 0 17.0							52.94	.645		30.000
	48			2 17.0								.652		
	49			4 17.0								.632		
	50			6 17.0								.627		
	51			8 17.0								.602		
	52			+ 10 5.0	327 24 58.2	53.6	58.1	54.8	43.0	50.0		.580		29.996
11	53	β Corvi	4	. . .	81 29 59.5	57.9	59.5	57.2	43.4	52.3	54.97	25.1160	30.7432	.842
	54			− 9 31.0	327 24 59.2	56.0	60.2	56.1	43.6	50.4		30.585	30.7445	.840
	55			7 31.0								.600		
	56			5 31.0								.616		
	57			3 31.0								.625		
	58	Polaris, S. P.	4	− 1 31.0							54.241	.648		
	59			+ 0 18.0								.670		.836
	60			+ 2 18.0								.668		

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
1849. May 11	1	Polaris, S. P.		— 4 18.0								30.638		
	2			6 18.0								.622		
	3			8 18.0								.603		
	4			10 1.0	327 24 59.2	55.8	59.8	56.2	43.8	50.6		.585		29.840
	5	Nadir	- -		199 59 59.6	58.9	61.2	62.2	43.2	53.5			30.7432	
	6				60.0	.9	.3	.2	.2	.5	56.466	30.6869		
	7				59.5	59.0	.2	61.8	.3	54.0				
	8				.5	.5	.0	.5	.2	.0				
14	9		2	— 9 40.0	327 24 60.1	55.6	61.2	55.2	45.6	50.6		30.635	30.7800	29.762
	10			7 40.0								.668		
	11			5 40.0								.682		
	12			3 40.0								.692		
	13			1 40.0								.712		
	14	Polaris, S. P.	4	+ 0 11.0							54.725	.712		.752
	15			2 11.0								.708		
	16			4 11.0								.708		
	17			6 11.0								.688		
	18			8 11.0								.668		
	19		6	+ 9 55.0	327 24 59.8	55.8	61.2	55.8	45.0	50.8		.648		.744
	20	η Ursæ Majoris	4	- - -	8 49 59.8	58.0	62.0	57.2	46.1	53.2	56.05	31.0675	30.7797	.744
	21	α Bootis	4	- - -	38 54 59.8	57.8	61.2	57.9	46.3	54.3	56.22	30.6245		.746
	22	β Ursæ Minoris	4	- - -	344 9 59.8	56.2	61.5	55.9	44.8	50.9	54.85	32.7105		.748
	23	β Libræ	4	- - -	67 39 59.8	58.0	63.2	58.8	45.2	54.0	56.50	28.8486		.748
	24	α Coronæ Borealis . . .	4	- - -	31 39 58.9	57.0	60.6	56.8	44.3	52.7	55.05	30.8164		.750
	25	β Scorpii	4	- - -	78 14 58.5	58.8	63.2	58.9	46.0	52.0	56.40	30.4060		.750
	26	δ Ophiuchi	4	- - -	62 9 59.5	57.8	61.5	58.0	44.4	52.8	55.67	29.8955		.752
	27	Nadir		- - -	199 59 59.8	58.8	62.1	61.0	44.1	54.8				
	28				.8	59.0	.3	60.5	43.8	.8	56.850	30.7299		
	29				60.0	.2	61.8	61.2	44.8	.8				
	30				59.8	.6	.9	.1	.6	.8				
17	†31	Sun, S. L.	- -	— 34.2	39 44 63.1	59.2	61.8	60.6	46.4	58.1	58.20	31.2045	30.7389	30.070
	†32	Sun, N. L.	- -	+ 35.3	39 9 63.7	61.5	63.5	62.2	48.7	58.7	59.72	28.0386		
	33	Nadir	- -	- - -	199 59 64.1	60.7	64.0	62.4	45.9	59.2				
	34				.4	60.4	63.9	.7	46.1	.4				
	35				.5	61.0	64.1	62.9	.1	.7	59.575	30.7321		
	36				.4	.1	63.9	63.1	.1	.7				
18	37	ζ Ursæ Minoris	4	- - -	340 39 58.3	55.8	60.8	58.5	43.0	52.8	54.87	31.7894	30.8953	.060
	38	β^1 Scorpii	4	- - -	78 14 57.5	57.0	60.0	58.2	42.9	51.8	54.57	30.5178		.060
	39	α Scorpii	4	- - -	84 59 56.0	56.8	60.5	59.8	43.3	52.8	54.53	33.3365		.060
	40	Nadir	- -	- - -	199 59 61.3	59.0	61.6	63.2	42.5	55.8				
	41				.0	.3	.8	62.9	.6	56.2	57.379	30.8536		
	42				.0	.8	62.0	.9	.8	.2				
	43				.0	.0	61.8	63.2	.8	.6				
	†44	Venus, S. L.	4	- - -	40 4 62.6	60.6	62.2	61.2	46.1	57.3	58.33	32.0237	30.8872	.210
	†45	Venus, N. L.	4	- - -								32.9450		
19	46	Nadir	- -	- - -	199 59 62.5	57.1	61.9	60.0	42.5	57.5			30.8872	
	47				.7	.0	.8	.0	.5	.5	57.000	30.8394		
	48				.4	.6	.7	.2	.7	.8				
	49				.6	.5	.6	.4	.7	.8				
	50	Nadir	- -	- - -	199 59 64.1	60.5	62.9	63.1	43.9	59.0			30.8872	
	51				.0	.3	.8	.1	.9	.2	58.917	30.8700		
	52				63.9	.5	.8	.2	.9	.2				
	53				.7	.5	.9	.4	.8	.4				
	54	α Coronæ Borealis . . .	4	- - -	31 39 64.0	60.0	62.3	60.9	44.7	58.9	58.47	31.0158		.187
	55	α Serpentis	4	- - -	51 59 64.6	60.8	62.9	63.1	46.0	59.1	59.42	32.0662		.186
June 4	56	α Virginis	4	- - -	69 14 58.0	55.2	56.7	53.5	43.2	53.0	53.27	30.6208	30.7187	29.882
	57	Nadir		- - -	199 59 56.9	54.3	56.3	54.2	41.3	53.7				
	58				.8	.8	.6	.0	.5	.8	52.845	30.6048		
	59				57.0	.0	.0	.2	42.0	.5				
	60				.0	.5	55.8	.2	.0	.9				

ER

		...TIONS FOR—		Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
			Object.					
			′ ″	° ′ ″	° ′ ″	′ ″		
		74 —	1 15.46	327 23 44.52			S.	
		65	.48	44.41				
		35	.51	44.08				
		87	.54	43.57				
		51	1 14.28	327 23 44.75			S.	
		01	.28	44.45				
		51	.28	44.95				
		84	.28	45.28				
		13	.28	44.57				
		27	.28	44.72	+ 88 30 5.26	+ 30.70		
		27	.27	44.73				
		62	.27	44.08				
		82	.27	44.28				
		..60	.26	44.07				
60.8 57.		+ 3.25	.26	43.72				
60.2 54.		— 18.08 —	11.20	8 49 26.67	50 4 12.58	— 22.75		
60.2 51.		+ 9.75 +	19.62	38.55 25.59	19 58 13.66	17.51		
59.5 53.2		— 2 1.27 —	41.47	144 7 12.11	+ 74 46 27.14	20.88		
59.5 52.2	7.2 60.0	+ 2 1.29 +	1 3.16	67 43 0.89	— 8 49 21.64	11.91		
59.0 51.9		— 2.30	11.96	31 40 4.65	+ 27 13 34.66	13.08		
59.0 52.2		+ 23.47	1 32.66	78 16 52.53	— 19 23 13.28	11.42		
58.5 52.2		+ 55.53	52.06	62 11 43.26	— 3 18 4.01	10.62		
	7.2 59.							
65.0		29.56	17.45	39 44 46.09	+ 19 24 42.91		C.	May 17 to 19. App. error of col., 10″ E.
	.0 63.	2 49.91 +	16.93	39 13 6.59				27 28. Unsteady; Sun's semi-diam., 15′ 49″.75. Mean hour angles of 4 observations of each limb.
	57.7 63.							
	N							
57.2 51.0		56.15 —	47.72	340 38 11.00	+ 78 15 28.25	15.90	S.	
57.2 52.0		23.71 +	1 33.67	78 16 51.95	— 19 23 12.70	11.36		
56.8 50.5		2 52.17	2 4.11	84 59 6.47	— 26 5 27.22	11.42		
63.								
54.8 68.5 62.		1 11.38	10.96	40 3 57.91	+ 18 50 10.37		C.	40–41. Venus' semi-diam., 29″.03; cusps indefinite; S. cusp imperfect; applied + 0″.17 cor. for def illumination of S. Limb; 4 observations of S. L., 3 of N. L.
		2 9.26	10.77	2 59.84				
62.2								May 18. Some inclination of wires; Nadir pt. changed; wire 3 has been disturbed
								May 20 to June 21. Removed diaphragm and put in a new set of wires; on fixed diaphragm five vertical and one horizontal wire; on Mic. diaphragm five horizontal wires, which are 5, 10, 10, 5 revs., respectively, apart.
62. 3 64.	0 62.	8.08	11.97	31 40 2.36	27 13 36.80	14.28		
62. 2	2 62.	1 14.05	36.19	51 59 21.56	+ 6 54 17.69	12.35		
78.2 76.9 73.2	0 75.	6.15 +	1 3.75	69 16 3.17	— 10 22 23.92 —	11.58		June 2. Lowered circle end of axis slightly; adjusted eye piece and wires.
	0 74.						S.	

DATE.	No. for ref.	OBJECTS OBSERVED.	Wire obs'd.	Hour angles.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1849.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
June 4	1	η Ursæ Majoris	4	...	8 49 56.3	53.3	55.3	50.7	42.0	51.0	51.43	31.0022	30.7187	29.890
	2	α Bootis	4	...	38 54 57.0	52.2	54.0	50.1	43.0	51.8	51.35	30.5405		.894
	3	α^2 Libræ	4	...	74 19 58.3	54.9	58.3	54.0	43.8	52.6	53.65	30.4009		.902
	4	β Libræ	4	...	67 39 60.8	57.0	60.0	56.3	45.3	55.6	55.83	28.7674		.902
	5	α Coronæ Borealis	4	...	31 39 62.5	57.3	59.0	55.0	46.0	56.6	56.07	30.8455	30.7187	.904
	† 6	Moon		− 1.4	75 44 57.5	55.3	58.8	53.2	44.0	51.3	53.35	27.5466		.916
5	7	α Bootis	4	...	38 54 64.1	60.5	62.6	60.8	49.5	50.9	59.57	30.6739	30.7116	30.106
	8	Nadir		...	199 59 63.9	61.9	64.3	64.6	47.3	60.2				
	9			...	64.1	.9	.5	.5	.3	.2				
	10			...	.2	62.6	.5	.7	48.1	.2	60.550	30.7204		
	11			...	.1	.8	.6	.7	47.9	.1				
	12	ε Bootis	4	...	31 9 65.1	61.6	63.9	63.2	49.9	60.8	60.75	30.1794		.104
	†13	β Ursæ Minoris		+ 11.6	344 4 65.7	61.8	66.5	.8	50.5	60.5	61.37	28.0632		.090
	14			...	65.5	62.0	.2	.3	.1	60.5				
	15	β Libræ	4	...	67 39 64.9	61.2	65.2	.9	49.4	60.5	60.85	28.8433		.094
11	†16	ε Bootis	4	...	31 9 59.9	57.0	60.5	57.2	45.0	53.0	55.43	30.0905	30.7147	.326
	17	β Ursæ Minoris	4	...	334 9 60.2	55.8	62.5	57.1	43.9	53.0	55.42	32.8240		.322
	†18	β Libræ	4	...	67 39 60.1	58.3	62.3	61.2	44.3	54.2	56.73	28.8135		.318
	19	α Coronæ Borealis	4	...	31 39 60.3	57.2	60.8	56.9	44.6	52.3	55.35	30.8483		.318
	20	α Serpentis	4	...	51 59 60.3	59.3	61.6	59.6	45.9	54.6	56.88	31.8924		.320
	21	β Scorpii	4	...	78 14 60.0	59.2	63.1	60.3	45.3	53.0	56.82	30.3607		.319
	22	δ Ophiuchi	4	...	62 4 60.0	59.3	61.8	60.0	43.9	53.0	56.33	25.1388		.320
	23	Nadir	4	...	199 59 59.5	58.9	62.0	61.3	43.9	53.3				
	24			...	.4	59.0	61.8	.3	.6	54.0				
	25			...	60.0	.2	62.2	.5	.8	53.8	56.629	30.6610		
	26			...	.2	.3	60.0	.3	.8	54.0				
	27	α Scorpii	4	...	84 59 60.0	60.3	65.5	61.3	47.3	53.0	57.90	33.4817		.314
16	†28	β Libræ	4	...	67 39 61.0	57.2	62.5	55.8	61.0	54.2	58.62	28.8149	30.6722	.120
	29	Nadir		...	199 59 61.4	59.2	63.1	59.8	60.2	56.4				
	30			...	.4	.3	.1	.9	59.9	.5	59.908	30.6707		
	31			...	60.9	.0	.1	58.9	60.2	.5				
	32			...	.9	.4	.1	59.2	.0	.4				
18	33	Nadir		...	199 59 62.1	58.9	63.5	60.0	58.8	56.5			30.6655	
	34			...	.3	.9	.6	.0	.9	.6				
	35			...	.5	59.1	64.0	59.8	.8	.7	60.075	30.6667		
	36			...	.3	58.8	.1	60.0	.9	.7				
	37	ζ Aquilæ	4	...	45 14 63.0	59.4	65.6	58.1	60.9	55.0	60.33	31.1752		.332
19	†38	Sun, S. L.		− 26.5	35 44 62.8	60.0	63.8	59.5	60.0	54.0	60.02	32.9728	30.6633	.296
	†39	Sun, N. L.		+ 26.5	35 14 63.5	60.2	65.0	57.9	60.2	56.5	60.55	34.4784		
	40	Nadir		...	199 59 58.9	51.0	58.3	52.5	52.9	52.0				
	41			...	.9	.0	.5	.0	.5	.0	54.312	30.5728		
	42			...	.8	.3	.8	.5	.8	.0				
	43			...	.5	.3	.8	.0	.8	.3				
20	44	Libræ, (4894)	4	...	74 14 61.1	54.1	59.2	57.9	57.0	56.4	57.62	31.2241	30.6632	.168
	45	α^2 Libræ	4	...								28.6378		
	46	β Libræ	4	...	67 42 34.8	28.6	32.5	31.5	33.0	31.3	31.95	31.2139		.180
	47	Nadir		...	199 57 36.9	27.4	32.1	31.7	30.4	31.8				
	48			...	.4	28.7	33.8	33.8	32.8	33.8	32.421	28.3143		
	49			...	35.0	.1	32.7	31.9	31.6	32.0				
	50			...	36.6	.9	33.3	33.2	33.6	33.6				
	51			...	200 2 34.1	27.5	32.9	32.5	31.9	32.7				
	52			...	36.5	28.9	33.1	33.9	33.4	34.1				
	†53			...	34.2	28.9	.0	32.9	33.2	32.1	32.850	33.0960		
	54			...	36.4	29.9	.9	34.0	34.7	33.7				
21	†55	Sun, N. L.	2½	− 27.5	35 19 59.0	54.2	56.9	54.6	55.0	55.0	55.78	39.8998	30.6563	30.218
	†56	Sun, S. L.	6	+ 31.0	35 44 51.0	16.8	18.0	47.9	48.3	47.5	48.25	33.5020		
	57	Nadir	...	...	199 59 60.2	49.4	56.8	52.3	51.6	56.0				
	58				.5	.8	.8	.5	.8	.2				
	59				59.9	50.2	.2	53.3	52.3	55.4	54.504	30.5688		
	60				60.0	51.0	.0	.3	51.8	56.0				

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B	C.	D.	E	F.	Mean.	MIC.	Mic. zero.	Barometer.
1849.			No.	m. s.	° ′ ″	′	″	″	″	″	″	Revs.	r.	In.
June 22	1	ϵ Bootis	4		31 9 63.1	54.3	57.8	55.9	55.8	58.8	57.62	30.1305	30.6645	30.070
	2	Libræ, (4894)	3		74 14 63.1	54.9	59.9	57.2	56.0	57.7	58.13	31.2096		.070
	3	α^2 Libræ	5									28.6421		
	4	Nadir			199 59 63.9	57.4	60.9	61.8	55.4	60.6			30.6645	
	5				.8	.4	.8	.5	.4	.5	59.855	30.6622		
	6				.7	.1	.8	.9	54.4	.4				
	7				.8	.3	.7	.9	.4	.7				
July 2	8	Sagittarii, (6077)	3		82 39 61.6	59.1	61.8	63.9	53.0	53.1	58 75	31.1046	30.6073	.088
	9	Nadir			199 59 61.3	58.7	60.2	67.4	52.4	57.1				
	10				.1	.9	.2	.4	.4	.4	59.567	30.6004		
	11				.3	59.0	.4	.1	.4	.1				
	12				.5	.4	.2	.2	.3	.2				
3	13	Ophiuchi, (5781)	4		74 24 63.0	58.1	62.9	65.0	54.5	55.4	59.82	31.3503	30.5669	.225
	14	Ophiuchi, (5846)	3		83 39 60.9	58.5	61.8	64.2	54.1	54.7	59.03	33.8760		.222
	15	Ophiuchi, (5851)	5									28.4244		
	16	α Ophiuchi	4		46 9 61.4	57.2	61.2	62.2	53.8	55.0	58.47	28.1118		.220
	†17	Moon, N. L.		— 30.9	78 4 61.1	59.1	62.7	64.2	55.5	55.5	59.68	30.0017		.216
	†18	Moon. S. L.		+ 34.7	78 34 61.2	59.1	62.8	64.0	55.0	55.5	59.60	30.2507		
	19	Sagittarii, (6079)	4		82 39 60.6	58.4	61.1	62.7	53.5	52.9	58.17	31.0495		.218
	20	μ^1 Sagittarii	4		79 59 61.4	59.4	61 9	63.8	54.4	54.8	59.28	33.0491		.216
	21	Nadir			199 59 61.9	58.9	60.9	66.5	52.9	57.2				
	22				.8	59.1	61.0	.3	53.0	.5	59.734	30.5627		
	23				62.0	.1	60.7	.5	52.9	.1				
	24				.0	.0	.8	.4	.8	.3				
	25	α Lyræ	4		20 14 61.8	58.0	62.1	63.1	55.1	54.8	59.15	30.8596		
	26	β Lyræ	4		25 39 61.9	58.8	61.7	62.9	53.6	54.5	58.90	28.7008		.208
5	27	Nadir			199 59 63.0	57.8	60.2	63.8	53.6	57.7			30.5774	
	28				.2	.7	.2	64.1	.4	.9	59.395	30.5676		
	29				.4	.9	.5	63.4	.7	.6				
	30				.2	58.1	.5	.7	.4	.9				
	31	γ Draconis	4		7 24 63.9	57.7	61.9	64.1	54.8	55.8	59.70	32.3676		.202
	†32	μ^1 Sagittarii	4		79 59 63.9	60.4	63.0	65.0	56.1	55.9	60.72	33.0507		.202
	†33	α Lyræ	3½		20 14 64.1	58.6	63.2	65.0	55.8	56.1	60.47	30.8922		
	†34	β Lyræ	4½		25 39 64.1	59.8	62.5	63.5	54.1	56.2	60.03	28.7334		.200
19	†35	Sun, N. L.		— 38.5	37 49 64.4	56.4	60.7	61.6	54.0	57.8	59.15	31.2969	30.5548	.249
	†36	Sun, S. L.		+ 32.5	38 19 62.2	53.9	59 6	60.5	51.2	56.9	57.38	29.7171		
	†37	Nadir			199 59 63.3	53.8	58.8	60.9	50.4	57.6				
	38				.1	54.0	.8	.9	.0	.9	57.455	30.5143		
	39				.1	53.9	.9	61.5	.1	.5				
	40				62.6	.8	.8	.2	.1	.5				
30	41	Nadir			199 59 65.1	57.4	61.9	63.2	54.1	60.1			30.5537	
	42				64.8	.8	.9	.2	.1	.0				
	43				.7	.9	.2	.3	.2	.2	60.275	30.5581		
	44				.8	.8	.0	.5	.4	.0				
	†45	Moon, N. L.		— 1.9	77 39 67.4	59.8	65.6	64.8	57.9	60.4	62.65	28.8315		30.040
	†46	Ceres	4½		88 4 63.0	56.2	59.1	59.1	52.1	55.6	57.52	32.6307		.036
30	†47	δ Ursæ Minoris	4	— 7.3	332 19 64.2	53.5	63.2	59.7	54.5	57.6	58.77	31.9473	30.5537	30.036
	48				63.8	53 9	63.1	59.6	54.4	57.7				
	†49	51 (Hev.) Cephei, S. P	4	+ 0.1	326 9 64.6	54.4	61.9	58.8	52.0	57.1	58.02	30.5371		.034
	50				64.6	54.5	61.5	58.6	52.0	57.0				
	51	β Lyræ	4		25 42 34.0	26.0	30.0	29.8	23.1	26.2	28.18	31.1853		.040
	52	ζ Aquilæ	4		45 14 64.0	55.4	60.4	59.5	53.7	56.0	58.17	31.1305		.042
Sept. 24	†53	β Aquilæ	4		52 49 61.0	58.2	62.1	62.1	53.6	51.5	58.08	29.8597	30.5162	29.910
	54	α^1 Capricorni	3½		71 49 62.1	59.2	62.6	62.1	54.7	51.9	58.77	30.1269		.914
	55	α^2 Capricorni	5									27.9514		
	56	α Cephei	4		356 59 65.4	63.3	68.8	68.9	58.4	54.5	63.22	33.6823		.918
	57	β Aquarii	4		65 9 63.4	60.9	65.7	65.2	56.4	52.1	60.62	34.0684		
	58	β Cephei	4		348 59 63.5	61.4	67.9	65.9	56.7	52.9	61.38	30.6802		.926
	†59	ϵ Pegasi	4		49 44 63.9	61.8	65.9	66.0	56.9	54.6	61.53	33.8100		.924
	†60	α Aquarii	4		59 59 63.9	60.8	66.5	64.7	57.2	54.1	61.20	34.7976		.924

THERMOMETERS.	CORRECTIONS FOR—		Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
Low.	Inst.	Object.					
°	′ ″	′ ″	° ′ ″	° ′ ″	′ ″		
84.2	+ 33.57	+ 10.77	31 10 41.96	+ 27 42 57.29	− 23.68	C.	
82.3	− 34.26	1 16.15	74 15 40.02	− 15 22 0.77	12.05		
	+ 2 7.11	1 16.28	74 18 21.52	15 24 42.27	12.02		
79.7						C.	
80.0							June 27. Took out Mic. diaphragm, and removed a minute fibre from the wires.
70.7	− 31.25	1 50.17	82 41 17.67	23.47 38.42	9.28		
69.2							
70.0							July 2. After Nadir, changed reading of mic. head.
69.5	49.23	1 19.43	74 25 30.02	15 31 50.77	11.18		
69.3	− 3 28.16	1 54.31	83 38 25.18	24 44 45.93	9.75		
	+ 2 14.65	1 54.80	83 44 8.48	− 24 50 29.43	9.71		15–16. Moon's semi-diam., 14′46″.22; applied 3″.22 cor. for defective illumination of S. Limb. Mean hour angles of 4 observations of each limb.
	2 34.29	+ 28.07	46 13 0.83	+ 12 40 38.42	13.85		
69.0	36.44	− 44 11.04	77 21 25.08	− 18 42 32.05			
	+ 18.88	− 44 20.95	77 50 57.53				
68.8	− 30.33	+ 1 50.15	82 41 18.09	23 47 38.34	9.15		
	2 36.00	1 38.68	79 59 1.96	− 21 5 22.71	9.14		
68.5							
68.8							
67.7	− 18.41	0.24	20 14 40.98	+ 38 38 58.27	9.10		
67.2	+ 1 57.27	5.76	25 42 1.93	33 11 37.32	7.87		
70.5							
71.0							
69.5	− 1 52.50	− 12.72	7 22 54.48	+ 51 30 44.77	14.62		
68.8	2 35.43	+ 1 37.97	79 59 3.26	− 21 6 24.01	9.12		32. Through light clouds.
66.3	− 19.78	0.24	20 14 40.93	+ 38 38 58.32	9.68		33. Through clouds.
	+ 1 55.89	5.68	25 42 1.60	33 11 37.65	8.43		34. Do.
80.0	46.34	15.54	37 49 28.35	+ 20 48 22.17			35–36. Sun's semi-diam., 15′48″.74.
81.	52.40	+ 16.04	38 21 5.82				
81.							37. Mean hour angles of 4 observations of each limb.
							45. Mean hour angle of 7 observations N. L.
81.	1 48.31	− 29 24.17	77 12 26.79	− 18 18 47.54			46. Applied AR. 18h. 2m. 47s.
80.	2 10.53	+ 2 11.91	88 4 58.90	− 29 11 19.65			
	1 27.58	− 1 0.50	332 17 30.69	+ 86 36 8.56	− 17.80		47. Mean hour angles of 9 observations at intervals of 20s.
80.	1.04	− 1 15.26	326 8 43.80	+ 87 15 4.55	+ 16.28		49. Mean hour angles of 11 observations.
80.	39.60	+ 5.51	25 41 54.00	33 11 44.26	− 14.94		
79.	36.25	26.02	45 14 47.94	13 38 51.31	12.06		53. Unsteady.
66.	41.24	36.79	52 51 16.11	+ 6 2 23.14	12.86		
65.	24.45	1 12.60	71 51 35.82	− 12 57 56.57	6.08		
	2 41.11	+ 1 12.70	71 53 52 58	− 13 0 13.33	6.04		September 24. Some inclination of vertical wires
64.	3 18.88	− 24.43	356 56 19.91	+ 61 57 19.34	13.61		at 15r. mic wire in coin. with its image,
	3 43.14	+ 57.58	65 7 15.06	− 6 13 35.81	5.33		30 about 3 diam. outside.
	10.30	− 34.61	348 59 16.57	+ 69 54 22.68	12.07		45 about 6 do.
	3 26.90	+ 32.77	49 42 7.39	+ 9 11 31.86	7.19		59. Very unsteady.
	4 28.94	+ 48.08	59 56 20.34	− 1 2 41.09	− 4.23		60. Unsteady.

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1849.			No.	m. s.	° ′ ″	″	″	″	″	″	″	*Revs.*	r.	*In.*
Sept. 24	† 1	Neptune	4½	- - -	70 4 63.8	62.5	66.6	66.0	57.9	53.6	61.73	29.9312		29.922
	2	Nadir	- -		199 59 64.7	64.7	67.2	70.8	56.5	56.2			30.5162	
	3				.8	65.0	.0	71.0	.3	.3	63.338	30.5693		
	4				65.0	64.5	66.9	70.1	.7	.6				
	5				64.9	.4	.9	.3	.8	.7				
26	†6	Sun, S. L.	- -	— 28.5	60 29 63.9	60.9	63.7	63.1	57.2	54.1		28.7629	30.5365	.726
	†7	Sun, N. L.	- -	+ 42.2	59 54 63.9	69.1	63.6	63.0	56.2	54.2		25.9102		
	8	Nadir			199 54 64.7	60.2	63.8	64.9	54.8	55.4			25.7606	
	9				.5	.1	.6	.9	.9	.3				
	10				63.9	.7	.9	65.1	55.2	54.8	60.588	25.7700		
	11				.8	.7	.5	.3	54.9	55.2				
27	12	β Aquilæ	4	- - -	52 49 55.8	52.6	56.2	57.7	48.3	47.4	53.00	30.7955	30.5220	30.076
	13	α^2 Capricorni	4	- - -	71 54 56.7	53.7	57.1	57.1	49.5	47.2	53.55	32.6628		.076
	14	Capricorni, (6995)	4	- - -	74 9 56.9	54.3	58.8	59.6	50.7	46.9	54.53	33.0366		.076
	15	Capricorni, (7134)	4	- - -	77 34 56.5	55.6	60.0	59.1	51.8	48.1	55.18	33.4592		.076
	†16	α Cygni	4	- - -	14 9 58.1	56.1	60.3	59.2	50.2	47.6	55.23	31.7260		.078
	†17	61^1 Cygni	4	- - -	20 54 58.5	56.1	59.7	59.5	51.3	48.0	55.52	32.8192		
	†18	61^2 Cygni	4									32.7605		
	19	Moon, S. L.	- -	— 1.6	74 44 58.0	56.5	60.1	60.9	51.7	47.9	55.85	28.9033		.086
	20	Nadir			199 59 56.9	55.4	57.8	60.3	49.0	48.0				
	21				.6	.8	58.1	.1	.1	.3	54.560	30.4384		
	22				.6	.6	57.5	.6	48.4	.5				
	23				.5	.6	.4	.6	.6	.1				
	†24	Capricorni, (7525)	4	- - -	76 9 56.4	54.9	59.7	59.6	51.1	45.6	54.55	28.1484		.094
	†25	Capricorni, (7580)	4	- - -	75 39 61.8	63.6	67.9	67.9	57.6	53.3	62.48	30.0626		.092
	†26	Metis	3¾	- - -	81 4 64.0	63.7	66.3	68.0	57.5	54.1	62.27	31.1174		.090
28	27	α Aquilæ	4	- - -	50 24 62.8	59.5	63.2	63.2	55.8	54.2	59.78	31.1913	30.5458	.100
	28	β Aquilæ	4	- - -	52 49 59.3	56.9	60.6	60.0	52.3	51.1	56.70	29.8290		.104
	29	α^2 Capricorni	4	- - -	71 54 64.7	61.2	64.0	64.9	57.8	54.9	61.25	32.7482		.104
	30	Nadir			199 59 64.6	60.9	65.5	65.9	55.5	56.2				
	31				.8	61.0	.4	.8	.8	.1	61.425	30.5685		
	32				63.8	60.9	.6	66.0	.9	.2				
	33				.9	61.1	.3	.1	.8	.1				
	†34	61^1 Cygni	4	- - -	20 54 64.6	61.5	65.1	64.5	57.0	55.0	61.28	32.9251		
	†35	61^2 Cygni	4									32.8689		
	36	ζ Cygni	4	- - -	29 14 64.5	60.0	64.8	64.5	58.1	55.4	61.22	29.1783		.108
	37	α Cephei	4½	- - -	356 59 64.5	61.0	66.9	66.1	58.1	55.1	61.95	33.6901		.108
	38	β Aquarii	5	- - -	65 4 64.8	61.1	66.5	65.8	58.1	53.9	61.70	29.2931		.108
	39	Capricorni, (7525)	4½	. . .	76 14 65.1	62.4	67.3	67.1	59.1	54.5	62.58	33.0381	30.5458	
	40	Capricorni, (7580)	4	. . .	75 39 65.8	63.5	68.9	67.4	58.1	55.1	63.13	30.0576		30.106
	†41	Metis	4	. . . .	81 4 66.4	64.3	67.7	67.1	59.0	56.8	63.55	32.1490		104
	†42	Moon, S. L.		— 0.4	71 44 67.4	63.9	67.8	66.9	59.1	57.1	63.70	31.1525		.102
	43	Aquarii, (7773)	4	. . .	67 24 67.9	66.2	69.9	69.1	61.3	58.1	65.42	31.3232		.100
	†44	Neptune	4¼	. . .	70 9 63.0	61.5	66.1	64.9	57.8	54.1	61.23	32.9072		.100
	†45	Venus, S. L.	4	. . .	46 49 60.7	59.5	62.9	62.5	54.9	50.6	58.52	31.9153		.100
	†46	Venus, N. L.	4									32.1600		
29	†47	Sun, N. L.		— 34.5	61 9 60.9	59.5	61.5	63.7	54.9	52.0	58.75	30.5560	30.5287	.050
	†48	Sun, S. L.		+ 31.3	61 39 61.2	60.1	62.0	63.1	55.1	52.6	59.02	28.5884		
	49	Nadir		. . .	199 59 60.6	57.1	61.4	61.9	52.0	52.7				
	50			. . .	.2	.0	.3	.9	51.4	.7				
											57.483	30.4886		
	51				59.6	.5	60.7	.9	52.1	.5				
	52			. . .	60.1	.4	.9	62.1	.0	.6				
Oct. 8	†53	β Aquarii	4	. . .	65 4 63.8	60.8	65.0	65.5	55.0	52.0	60.35	29.3396	30.5434	.082
	†54	ε Pegasi	4½	. . .	49 39 64.3	62.9	66.2	68.0	58.1	55.5	62.50	29.0874		.084
	†55	Lalande, (42700)	3	. . .	80 29 62.7	62.9	65.6	66.4	56.9	51.9	61.07	18.4516		.086
	†56	Metis	5	. . .								18.7361		
	†57		4	. . .								18.4848		
	†58	Aquarii, (7649)	5½	. . .								15.6000		
	†59	Neptune	4	. . .	70 9 62.7	63.2	66.5	67.6	57 7	53.1	61.80	28.9234		.088

No. for ref.	THERMOMETERS. At.	Ext.	St.	Up.	Lo.	CORRECTIONS FOR— Inst.	Object.	Corrected Readings	Observed Declinations.	Reduct'n to 1850.0	Observer
	°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	″	
1	62.7	56.1		61.0	63.5	+ 36.76	+ 1 8.27	70 6 46.76	— 11 13 7.51		
2			67.0	62.0	63.8						C.
3											
4											
5				62.7	64.7						
6	70.0	73.5				1 51.87	41.55	60 32 33.90	— 1 22 53.11		
7			66.2	70.7	67.5	4 49.93	40.72	60 0 30.82			
8			66.2	71.5	68.0						
9											
10											
11				71.8	68.0						
12	65.5	56.4	65.7	62.0		+ 45.63	37.19	52 51 15.82	+ 6 2 23.43	— 12.87	
13	65.0	55.9				— 2 14.48	1 13.38	71 53 52.45	— 13 0 13.20	5.91	
14	64.5	55.8		62.0		2 37.96	1 19.60	74 8 36.17	15 14 56.92	5.08	
15	64.2	55.4				3 4.50	+ 1 30.49	77 32 21.17	— 18 39 41.92	3.29	
16	64.2	55.4				1 15.63	— 5.92	14 8 33.68	+ 44 45 5.57	17.16	
17		54.9		60.5	63.0	2 24.30	+ 0.88	20 52 32.10	38 1 7.15	13.65	
18						— 2 20.61	+ 0.88	20 52 35.79	+ 38 1 3.46	13.70	
19	63.5	54.9				+ 1 41.51	— 58 52.10	73 47 45.26	— 14 54 6.01		
20			66.2	71.5	68.0						
21											
22											
23				71.8	68.0						
24	63.2	53.4		62.5	63.0	2 29.10	+ 1 26.45	76 13 50.10	17 20 10.85	1.63	
25		54.3				+ 28.86	1 24.60	75 41 55.94	16 48 16.69	1.61	
26	62.5	54.4		62.3	63.0	— 37.40	1 39.46	81 6 4.33	— 22 12 25.08		
27	68.0	66.0	65.0	69.3		— 40.55	33.21	50 24 52.44	+ 8 28 46.81	13.56	
28	67.7	65.4				+ 45.03	36.58	52 51 18.31	— 6 2 20.94	12.84	
29	68.0	63.1		69.0		— 2 18.35	1 12.42	71 53 55.32	— 13 0 16.07	5.85	
30			65.0	67.5	66.5						
31											
32											
33				68.0	66.5						
34		60.8		67.5	66.3	2 29.46	0.87	20 52 32.69	+ 38 1 6.56	13.78	
35						— 2 25.93	0.87	20 52 36.22	38 1 3.03	13.83	
36	67.8	61.0				+ 1 25.90	+ 9.34	29 16 36.46	29 37 2.79	13.03	
37	67.8	60.4				— 3 17.51	— 24.36	356 56 20.08	+ 61 57 19.17	14.52	
38	67.8	60.1		67.0	66.5	+ 1 18.69	+ 57.41	65 7 17.80	— 6 13 38.55	4.66	
39		60.0				— 2 36.56	+ 1 25.36	76 13 51.38	17 20 12.13	1.53	
40	67.7	59.9				+ 30.67	1 23.70	75 41 57.50	16 48 18.25	1.51	
41		59.6				— 1 40.71	+ 1 38.36	81 5 1.20	22 11 21.95		
42	67.5	59.5		66.7	66.5	38.15	— 57 56.87	70 46 28.68	11 52 49.43		
43		59.2				48.83	+ 1 2.30	67 25 18.89	8 31 39.64	2.30	
44	67.0	59.0	65.0	65.0		2 28.33	1 8.34	70 8 1.24	— 11 15 1.99		
45	63.5	66.2		65.5	63.8	1 27.10	25.44	46 48 56.86	+ 12 4 50.31		
46						1 42.47	24.96	46 48 41.01			
47	57.0	73.7		70.0	65.5	— 1.15	43.10	61 10 40.70	— 2 33 3.24		
48						+ 2 1.28	43.97	61 42 44.27			
49				71.5	66.5						
50											
51											
52				71.6	66.5						
53	59.0	48.0	61.5	55.7	57.5	1 15.62	58.77	65 7 14.74	— 6 13 35.49	7.82	
54	58.2	48.0		54.0		1 31.46	33.42	49 42 7.38	+ 9 11 31.87	— 7.81	
55	57.0	47.8		53.7		12 39.58	1 44.21	80 44 24.86	— 21 50 45.61	+ 0.97	
56						12 21.69	1 39.56	80 44 2.32	21 50 23.07		
57						12 37.50	1 44.20	80 44 22.77	21 50 43.52	1.01	
58						15 38.74	1 44.42	80 47 24.23	21 53 44.98	+ 1.14	
59	56.5	17.3		53.2		+ 1 41.76	+ 1 10.12	70 12 53.68	— 11 19 14.43		

REMARKS.

1. Extremely faint.
App. AR. 22h. 19m. 33s.

6–7. Sun's semi-diam., 16 1.″56. Mean hour angles of 4 observations of each limb.

16. One bisection.
17. Four bisections.
18. Three bisections.

19. Mean hour angle of 7 observations of S. limb.

24. Unsteady.
25. Very unsteady.

26. Extremely faint, other stars preceding 5′ N. and 5′ S.
App. AR. 21h. 51m. 25s.

34. Three observations.
35. Two observations.

41. Three observations; no other stars near in declination. App. AR. 21h. 51m. 2s.4.
42. Mean hour angle of seven observations.
44. App. AR. 22h. 19m. 13s.; 4 observations.
45–46. Venus' semi-diam., 7″.92; three observations of S. L., two of N. L.; cor. for def. M. N. S., 0″.48.
47–48. Interrupted by persons coming in observing room. Sun's semi-diam., 16′ 1″.78. Mean hour angle of four observations of N. L., three observations of S. L.
53. Very unsteady.
54. Very unsteady.
55. Observation very poor.
56. Extremely faint; observation doubtful; Mic. wire (2), red. = + 0r.0085.
57. Very poor.
55. App. AR. 21h. 47m. 15s.; observed with Mic. wire (2), red. = + 0r.0043.
56. App. AR. 21h. 48m. 40s ? 50s.
57. App. AR. 21h 48m. 59s. (9.10) Mic. wire (2), red. = + 0r.0065.
58. Very poor.
59. App. AR 22h. 18m. 27s.

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1849.			No.	m. s.	° ′ ″	″	″	″	″	″	″	*Revs.*	*r.*	*In.*
Oct. 8	1	Nadir	- -	. . .	199 59 62.2	62.7	64.1	68.8	54.8	53.5			30.5434	
	2				.1	63.0	.0	.9	.8	.5				
	3				61.8	62.3	63.9	.1	.7	.2	60.812	30.5563		
	4				.7	.3	.6	.3	.3	52.9				
	† 5	Venus, S. L.	3½	. . .	50 49 62.5	61.7	64.1	66.8	56.8	53.0	60.82	31.1212		30.168
	† 6	Venus, N. L.	4½	. . .								31.3472		
11	† 7	Lalande, 42700	4	. . .	80 34 64.3	66.1	67.6	68.6	59.9	55.0	63.58	23.2631	30.5431	29.834
	† 8	Metis	5½	. . .								32.7475		
	9	Aquarii, (7649)	5	. . .								20.4046		
	†10	Neptune	4	. . .	70 14 64.3	65.0	67.9	68.4	59.9	54.8	63.38	32.6550		.836
	11	Nadir		. . .	199 59 64.0	65.4	66.3	70.8	57.6	54.9				
	12				.0	.0	.1	.9	.2	55.1				
	13				63.5	.4	65.9	.7	58.1	.1	63.112	30.5925		
	14				.5	.5	.9	.8	57.9	.1				
	†15	α Piscis Australis	4	. . .	89 14 64.5	66.0	66.9	66.9	58.0	53.5	62.63	29.5168		.834
	†16	α Pegasi	4	. . .	44 29 64.3	63.4	65.8	66.3	57.0	52.9	61.62	31.3772		.834
25	17	Capricorni, (7374)	4	. . .	74 39 61.4	61.8	64.4	64.5	57.8	51.3	60.20	30.8049	30.5748	30.246
	18	β Aquarii	4	. . .	65 4 61.3	58.4	62.0	61.5	55.1	49.2	57.92	29.2909		
	19	β Cephei	4½	. . .	348 59 62.6	60.4	66.5	64.2	56.9	51.8	60.40	30.8059		.240
	†20	Moon, S. L.	- -	— 1.1	73 19 68.8	61.3	65.1	66.0	58.5	52.1	61.97	29.0434		.246
	21	Lalande, 42700	5½	. . .	80 44 63.1	62.9	63.1	64.2	56.7	52.1	60.35	32.7591		
	22	Aquarii, (7649)	4	. . .								29.8958		
	23	Lalande, 42984	4½	. . .	81 19 63.1	63.1	64.2	64.4	57.1	50.9	60.47	28.5455		.246
	24	Lalande, 43106	4	. . .								38.9506		
	†25	Neptune	4	. . .	70 14 63.4	63.2	66.0	65.7	59.4	53.2	61.82	28.8712		.244
	26	Nadir	- -	. . .	199 59 62.9	63.9	64.8	68.5	56.9	54.9				
	27				63.2	.9	.8	.8	.3	55.0	62.033	30.6071		
	28				.5	.7	.8	.4	.2	54.8				
	29				.3	.7	.3	.2	.0	.9				
26	30	Nadir			199 59 60.9	59.7	61.8	64.3	54.9	52.1			30.5607	
	31				.8	.9	.9	.1	.9	.1	58.950	30.5440		
26	†32	Aquarii, (7840)	4	. . .	70 19 59.2	58.6	61.3	61.5	54.9	49.5	57.50	31.3722	30.5607	30.300
	†33	Moon, S. L.	- -	— 1.8	69 59 59.9	59.1	62.6	62.1	56.1	50.2	58.33	32.7227		.300
27	†34	Sun, S. L.	- -	— 18.5	72 4 58.6	58.0	58.9	61.4	53.7	47.9	56.42	31.3019	30.5416	.294
	†35	Sun, N. L.	- -	+ 36.5	71 29 56.4	56.2	58.3	60.1	51.2	46.5	54.78	28.6745		
	36	Nadir	- -		199 59 59.5	57.9	60.6	63.0	51.6	49.6				
	37				.7	58.0	.7	.0	.9	50.0				
	38				58.4	57.9	.8	.1	52.3	.1	57.125	30.4958		
	39				.5	58.0	.6	.3	.4	.1				
	†40	Lalande, 42700	4		80 44 63.3	62.1	63.4	64.9	56.9	52.8	60.57	32.7134	30.5474	.222
	41	Aquarii, (7649)	4									29.8357		
	42	Lalande, 42984	4½		81 19 63.2	62.0	62.7	63.9	56.3	52.1	60.03	38.4634		.228
	43	Lalande, 43106	4									38.9006		
	†44	Neptune	4		70 19 63.2	61.9	64.0	65.0	57.9	53.7	61.07	33.2272		.224
	†45	Aquarii, (7840)	4		63.4	62.1	64.2	65.8	58.2	53.5		31.3962		.222
	†46	ζ Pegasi	4		48 49 63.7	60.8	63.1	65.9	57.3	54.4	60.87	30.5253		.224
	47	Aquarii, (7970)	4		67 14 63.9	62.7	65.4	65.0	57.8	53.5	61.38	30.3782		.224
	†48	α Piscis Australis	4		89 14 65.1	64.1	65.4	65.0	57.1	53.4	61.68	29.4212		.228
	49	Nadir	- -		199 59 64.3	62.3	64.8	68.1	56.2	56.2				
	50				.1	.2	.5	67.9	.3	.2				
	51				.6	.1	.2	68.0	.9	.1	61.954	30.5785		
	52				.6	.2	.1	.0	.9	.1				
	†53	Moon, S. L.	- -	— 2.4	65 59 64.1	60.9	64.9	63.8	57.5	53.1	60.72	33.7306		.230
	†54	Piscium, (8271)	4		62 29 63.6	62.2	63.9	65.8	57.9	53.1	61.08	32.0620		.230
	†55	Piscium, (8328)	4		63 14 63.5	62.8	63.6	64.8	57.2	52.1	60.67	29.5745		.230
Nov. 2	†56		4		80 19 64.5	65.1	66.3	69.8	57.8	54.6	63.02	31.6524	30.5335	
	†57		6		79 29 64.1	65.5	67.1	69.9	58.8	54.4	63.30	25.6706		.104
	†58		4¼									38.2221		
	†59	Neptune	4		70 19 65.1	65.5	67.4	70.7	59.9	55.1	63.95	32.4349		.094

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1849.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
Nov. 2	1	Nadir - - - - - - -	- -	- - -	199 59 65.6	65.5	66.9	72.7	58.0	56.9			30.5385	
	2				.4	.7	.9	.9	57.8	.6	64.212	30.6004		
	3				.3	.9	67.0	.4	58.1	.7				
	4				.3	66.1	66.6	.2	.2	.4				
	†5	α Piscis Australis - - - -	4	- - -	89 14 65.3	67.2	67.6	70.2	59.1	54.4	63.97	29.4957		30.092
	6	α Ursæ Majoris, S. P. - -	4	- - -	301 29 65.2	64.1	66.9	69.1	57.1	54.6	62.83	28.8411		.092
4	†7	Venus, S. L. - - - - -	4	- - -	63 19 63.5	61.0	61.7	63.2	56.0	51.2	59.43	32.8828	30.5637	.176
	†8	Venus, N. L. - - - - -	4									33.0935		
5	†9	Sun, S. L. - - - - - - -	- -	— 31.7	74 59 63.5	63.9	66.1	69.1	58.2	54.6	62.57	33.1549	30.5637	.150
	†10	Sun, N. L. - - - - - - -	- -	+ 33.5	74 24 63.1	63.5	66.0	67.8	57.1	53.4	61.82	30.6061		
	†11	Nadir - - - - - - -	- -	- - -	199 59 62.9	60.4	62.6	65.8	53.2	53.9				
	12				.8	.2	.4	.5	.0	.9	59.717	30.5592		
	13				.2	.4	.8	.8	.0	.8				
	†14				.3	.5	.5	.5	54.8	54.0				
	15	ζ Cygni - - - - - - -	4	- - -	29 14 60.6	57.6	59.2	61.6	54.6	50.8	57.40	29.1688	30.5473	.104
	16	β Aquarii - - - - - - -	4	- - -	65 4 61.0	57.0	60.6	61.3	54.5	49.9	57.38	29.2279		.108
	17	ε Pegasi - - - - - - -	4	- - -	49 39 63.0	60.4	63.0	64.7	56.5	55.1	60.45	29.0341		.108
	†18	⚬ Ap. A.R. 21*h.* 49*m.* 56*s.* -	3½		80 19 63.1	63.0	64.7	65.7	58.1	54.7	61.55	31.5744		.108
	19	Nadir - - - - - - -	- -	- - -	199 59 61.9	57.5	60.8	61.9	52.1	52.8				
	20				62.1	.4	.7	62.0	.1	.7	57.925	30.5143		
	21				61.5	58.1	.8	.6	.8	.6				
	22				.3	.1	.5	.7	.5	.7				
	†23	⚬ Ap. A.R. 21*h.* 57*m.* 33*s.* -	4½		79 24 62.9	62.3	63.0	63.2	56.6	53.2	60.20	33.3220		.112
7	†24	* " " 21 48 13 - -	6		80 19 63.6	62.3	64.2	66.8	57.5	55.3	61.62	30.1397	30.5550	29.850
	†25	⚬ " " 21 49 55 - -	5⅓		80 19 63.6	62.3	64.2	66.8	57.5	55.3	61.62	31.5804		.850
	†26	⚬ " " 21 57 34 - -	4		79 19 63.8	62.1	64.2	64.2	57.4	54.2	60.98	28.5392		.844
	†27	⚬ " " 21 59 27 - -	4½									33.2686		
	†28	Neptune - - - - - -	4	. . .	70 19 64.3	61.6	63.5	65.5	56.8	54.9	61.10	31.9713		
	†29	Aquarii (7818) - - - -	6	. . .	76 19 64.9	62.3	65.0	66.8	58.2	53.8	61.83	28.2973		.842
	†30	Aquarii (7819) - - - -	6	. . .								28.2119		
	31	Nadir - - - - - - -	- -	. . .	199 59 64.1	62.1	62.9	67.0	55.5	56.6				
	32				.1	.0	3.1	.1	.2	.8	61.446	30.5780		
	33				.5	.0	.1	.1	.8	.6				
	34				.6	.1	2.9	.3	.8	.4				

OBSERVATIONS

WITH

THE MURAL CIRCLE,

1850.

NATIONAL OBSERVATORY

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. zero.	Barometer.
1850.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
June 3	1	Nadir	- -	- - -	199 59 17.2	12.0	15.0	21.0	2.5	9.3				
	2				15.4	10.8	12.8	19.5	1.2	7.2				
	3				15.5	10.3	13.5	18.2	1.8	6.8	11.700	29.9047	30.6736	
	4				15.3	11.4	14.5	20.5	2.6	7.5				
	5				15.9	11.1	13.9	19.6	2.4	8.0				
	†6		3		31 44 16.3	11.5	14.8	17.3	3.3	7.8	11.83	30.6188	30.6736	30.190
	7	β Ursæ Minoris	3	- - -	344 7 35.6	29.5	35.4	36.4	24.5	26.3	31.28	30.1713		
	8	η Draconis	3	- - -	357 2 27.8	25.5	29.4	34.3	18.2	18.6	25.63	30.4404		30.190
	†9	Groombridge, 2418	2½	- - -	345 24 55.7	50.2	56.2	55.1	44.2	45.2	51.10	25.6964		30.184
	†10	Groombridge, 2420	3									32.2763		
	†11	Comet 1, 1850	3	- - -	345 14 65.8	60.0	65.0	68.0	53.2	54.8	61.13	26.8208		
	†12		3									26.8058		
	†13	(12)	5		345 13 33.6	28.0	32.3	35.3	21.5	23.0	28.95	25.9448		
5	14	Centauri (4686)	3	- - -	94 29 66.8	60.8	61.0	70.7	51.9	58.4	61.60	32.7686	31.0596	30.366
	15	Hydræ (4711)	3	- - -	84 44 66.8	59.0	61.7	70.4	52.3	58.0	61.37	30.0506		
	16	Hydræ (4763)	3	- - -	85 54 65.4	59.4	60.5	69.5	52.0	56.2	60.50	30.6742		
	17	Hydræ (4784)	3	- - -	87 39 65.3	57.7	58.0	67.5	49.9	55.4	58.97	30.7150		
	†18	Bootis (4812)	2	- - -	19 55 18.5	11.2	12.2	21.5	4.0	9.0	12.73	30.7690		
	19	Libræ (4854)	3	- - -	83 14 65.0	60.0	60.1	68.9	51.0	56.2	60.20	32.8193		30.367
	20	Libræ (4913)	3	- - -	82 52 40.3	35.3	35.2	43.0	27.0	31.8	36.16	30.3135		
	21				42.5	36.0	36.0	44.8	29.0	33.0				
	22	Hydræ (4930)	3	- - -	85 54 65.9	59.8	61.0	70.0	52.1	57.0	60.97	31.3555		
	†23	Hydræ (4940)	3	- - -	86 19 66.4	60.3	61.7	70.8	52.0	57.6	61.47	31.7194		30.364
	24	Lupi (5009)	3	- - -	89 49 64.8	59.3	59.4	68.1	50.1	55.9	59.60	32.5224		
	25	Lupi (5160)	3	- - -	92 44 65.4	59.2	59.2	68.0	50.0	55.1	59.48	30.3552		
	26	Lupi (5173)	3	- - -	93 4 64.7	58.7	58.2	68.9	49.2	55.2	59.15	31.9610		30.352
	27	Nadir	- -	- - -	199 59 63.8	57.3	57.4	67.7	49.2	57.6				
	28				63.4	57.3	57.3	67.7	48.8	57.3				
	29				63.4	58.0	57.8	67.8	48.9	57.4	58.875	31.0402	31.0596	
	30				63.5	57.5	57.6	67.5	49.1	57.6				
	31	(13)	3		345 47 34.8	27.1	30.3	35.9	20.3	27.0				
	32		3		36.2	27.8	31.5	37.4	22.0	27.0	29.77	33.3599		30.356
	†33	Ursæ Minoris (5769)	3	- - -	345 24 62.1	53.8	58.0	62.8	47.9	53.2	56.30	23.3239		
	34	Groombridge, 2418	2									26.2223		
	35	Groombridge, 2420	4									32.8005		
10	36	Centauri (4686)	3	- - -	94 29 67.1	61.1	63.9	81.0	57.1	64.3	64.75	32.7478	30.9955	29.964
	37	Hydræ (4711)	3	- - -	84 44 69.1	62.1	65.6	82.0	53.0	66.4	66.37	30.0507		29.970
	38	Hydræ (4763)	3	- - -	85 54 63.0	57.0	58.8	76.0	47.8	59.8	60.40	30.6001		
	39	Hydræ (4784)	3	- - -	87 39 62.9	54.9	57.0	73.8	46.0	58.6	58.87	30.6374		.974
	40	Libræ (4854)	3	- - -	83 12 36.2	31.7	33.1	47.5	20.7	33.8	34.31	30.4253		
	41				37.8	31.7	33.4	49.2	21.8	34.8				
	42	Libræ (4913)	3	- - -	82 52 34.9	28.3	29.6	45.9	17.2	30.3	31.50	30.1577		
	43				35.8	28.6	30.4	46.4	18.9	31.7				
	44	Hydræ (4930)	3	- - -	85 54 63.4	58.2	60.0	77.9	49.2	60.3	61.50	31.2835		
	45	Hydræ (4940)	3	- - -	86 19 64.0	57.6	59.9	78.0	48.1	61.6	61.53	31.6389		
	46	Lupi (5009)	3	- - -	89 49 63.8	59.6	60.5	77.5	48.8	61.1	61.88	32.4575		
	†47	(14)	2		347 34 65.4	56.9	62.3	77.2	48.3	64.4				
	†48				65.4	56.9	62.8	77.6	49.0	64.3	62.54	24.5523		30.000
	49	(15)	4									30.5677		
	†50	Comet 1, 1850	4½	- - -								29.8286		
	51	Ursæ Minoris (5769)	3½	- - -	345 29 62.8	55.1	59.1	74.0	47.3	59.8	59.68	28.1326		
	†52	(12)	3		345 14 62.4	54.8	59.1	72.8	47.1	59.6				
	†53				62.1	54.2	58.2	72.8	46.6	59.2	59.07	27.8279		30.010
	†54	α Lyræ	3	- - -	20 14 63.5	56.5	59.0	76.0	48.8	60.0	60.63	31.2080		
	55	Nadir	- -	- - -	199 59 64.1	57.5	47.6	78.2	59.2	63.8				
	56				64.5	57.9	47.9	78.8	59.0	64.0	61.960	31.0267	30.9955	
	57				64.4	58.2	48.1	78.5	59.2	64.0				
	58				64.1	58.2	48.0	78.5	59.3	64.0				
11	59	Centauri, (4686)	3	- - -	94 29 66.0	59.0	61.2	79.0	41.4	61.2	61.30	33.1176	31.3771	30.192
	60	Hydræ, (4711)	3	- - -	84 44 65.8	59.0	63.0	80.2	50.0	62.3	63.38	30.4020		.194

THERMOMETERS.					CORRECTIONS FOR—		Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
At.	Ext.	St	Up.	Low.	Inst.	Object.					
°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	′ ″		
										H.	
67. 3	61. 0				+ 3. 62	+ 11. 91	31 44 27. 36	+ 27 9 11. 89	— 4. 09		Latitude = 38° 53′ 39″. 25.
					31. 62	— 41. 43	344 7 21. 47	74 46 17. 78	11. 97		June 3 to June 13. Value of mic. revolution,
66. 8	60. 4				14. 74	24. 31	357 2 16. 06	61 51 23. 19	6. 84		62″. 816.
66. 0	58. 3				+ 5 12. 68	39. 58	345 29 24. 20	73 24 15. 05	5. 02		
					— 1 40. 64	39. 75	345 22 30. 71	73 31 8. 54	4. 96		Observations of June 3 corrected for runs.
					+ 4 2. 02	39. 85	345 18 23. 30	73 35 16. 25			R = + 1″. 18.
					4 2. 96	39. 85	345 18 24. 24	73 35 15. 01	4. 62		
					4 57. 96	39. 87	345 17 46. 14	+ 73 35 53. 11	— 4. 31		Observer from June 3 to 13, Professor Hubbard.
73. 0	68. 8				1 47. 35	+ 3 21. 20	94 31 35. 45	— 35 37 56. 20	+ 10. 13		
					1 3. 38	1 59. 84	84 48 4. 59	25 54 25. 34	7. 53		
					24. 21	2 6. 41	85 57 31. 12	27 3 51. 87	7. 14		June 4. Broke all the wires of the diaphragm,
					21. 65	+ 2 17. 40	87 42 38. 02	— 28 48 58. 77	+ 7. 12		and replaced them June 5 by a new system.
					+ 18. 25	— 0. 06	19 55 30. 92	+ 38 58 8. 33	— 8. 05		
72. 2	68. 0				— 1 50. 54	+ 1 52. 16	83 15 1. 82	— 24 21 22. 57	+ 5. 29		
					+ 46. 87	1 50. 59	82 55 13. 62	24 1 34. 37	4. 54		6. Observed at 14*h*. 38*m*.
					— 18. 59	2 6. 45	85 56 48. 83	27 3 9. 58	4. 75		
71. 8	63. 3				41. 45	2 8. 81	86 21 28. 83	27 27 49. 58	4. 10		June 5. Saw the comet; too faint for observation.
					— 1 31. 89	2 33. 22	89 51 0. 93	30 57 21. 68	4. 23		9. Two bisections. 10. One bisection.
					+ 44. 25	3 1. 08	92 48 44. 81	33 55 5. 56	2. 73		11–12. One bisection on wire III.
71. 2	67. 5				— 56. 62	+ 3 4. 51	93 7 7. 04	— 34 13 27. 79	+ 2. 55		12. Star of (10) mag. observed at 17*h*. 10*m*.
70. 4	65. 9				— 2 24. 50	— 38. 85	345 44 26. 42	+ 73 9 12. 83	— 6. 11		13. One bisection.
					+ 8 5. 92	39. 15	345 32 23. 07	73 21 16. 18	5. 96		Stars marked (12) (13) (14) &c., are stars of
					+ 5 3. 87	39. 22	345 29 20. 95	73 24 18. 30	5. 70		comparison for comet.
					— 1 49. 36	— 39. 39	345 22 27. 55	+ 73 31 11. 70	— 5. 65		18. Two bisections.
72. 0	68. 1				— 1 50. 07	+ 3 18. 83	94 31 33. 51	— 35 37 54. 26	+ 10. 46		23. Three bisections.
71. 6	67. 8				+ 59. 35	1 58. 52	84 48 4. 24	25 54 24. 99	7. 65		33. One bisection.
					24. 84	2 4. 97	85 57 30. 21	27 3 50. 96	7. 29		47. (9) Mag.
71. 0	67. 6				22. 49	2 15. 84	87 42 37. 20	28 48 57. 95	7. 31		48. (8. 9) Mag.
					35. 82	1 50. 87	83 15 1. 00	24 21 21. 75	5. 39		50. Two bisections.
					+ 52. 63	1 49. 35	82 55 13. 48	24 1 34. 23	4. 63		50. Observation corrected for daily motion of
					— 18. 09	2 5. 05	85 56 48. 46	27 3 9. 21	4. 92		comet 3420″ per day, going south.
					40. 42	2 7. 54	86 21 28. 65	27 27 49. 40	4. 77		
					— 1 31. 84	+ 2 31. 77	89 51 1. 81	— 30 57 22. 56	+ 4. 49		52–53. (10) Mag.
63. 5	64. 0				+ 6 44. 74	— 35. 80	347 41 11. 48	+ 71 12 27. 77	— 10. 02		
					46. 87	35. 94	347 34 53. 47	71 18 45 78	10. 02		
					1 13. 30	35. 92	347 35 39. 92	71 17 59. 33			
					2 59. 83	38. 91	345 32 20. 60	73 21 18. 65	7. 70		
69. 5	63. 0				3 18. 98	39. 28	345 17 38. 77	73 36 0. 48	6. 59		
					— 13. 35	+ 0. 23	20 14 47. 51	+ 38 38 51. 74	— 12. 70		54. Observed with power 215.
67. 5	61. 0				— 1 49. 33	3 23. 18	94 31 35. 15	— 35 37 55. 90	+ 10. 56		
67. 2	60. 5				+ 1 1. 25	+ 2 1. 14	84 48 5. 77	— 25 54 26. 25	+ 7. 72		

DATE.		No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
					m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
1850. June	11	1	Hydræ, (4763)	3	- - -	86 9 65.3	60.0	62.4	81.8	50.0	62.2	63.62	45.3877	31.3771	
		2	Hydræ, (4784)	3	- - -	87 39 65.0	57.9	58.6	78.5	47.9	59.9	61.30	31.0745		
		† 3	Bootis, (4812)	3	- - -	19 54 64.8	58.0	60.3	77.8	49.2	60.8	61.82	30.9323		
		4	Libræ, (4854)	3	- - -	83 14 65.3	60.4	62.1	80.0	49.4	60.5	62.95	33.1995		30.202
		5	Libræ, (4913)	3	- - -	82 52 36.0	30.8	31.1	48.9	18.6	30.4	33.14	30.6002		
		6				37.5	31.1	32.0	49.9	19.8	31.6				
		7	Hydræ, (4930)	3½	- - -	85 54 63.5	57.7	59.0	79.0	48.3	58.4	60.98	31.6946		
		8	Hydræ, (4940)	3	- - -	86 19 63.0	58.2	59.8	78.8	47.8	59.5	61.18	32.0685		30.204
		9	Lupi, (5009)	3	- - -	89 49 64.1	59.6	60.3	78.9	48.8	59.1	61.80	32.8968		
		10	Groombridge, 2319	3	- - -	348 9 64.0	57.1	62.8	77.9	48.5	60.3	61.77	27.2493		
		†11	(16)	3	- - -	- - -	--	--	--	--	--	- - -	30.7675		
		†12	Comet 1, 1850	4	- - -	- - -	--	--	--	--	--	- - -	35.2671		
		†13	(14)	2½	- - -	347 34 63.4	56.0	62.7	67.2	47.9	60.8	59.67	24.8695		30.208
		14	(15)	3	- - -	- - -	--	--	--	--	--	- - -	30.9068		
		15	Groombridge, 2356	3	- - -	347 9 63.8	55.9	61.2	77.2	47.7	60.2	61.00	30.4088		
		16	(13)	3	- - -	345 44 63.3	56.0	59.8	75.3	47.6	58.0	60.00	31.2832		
		17	Groombridge, 2418	2	- - -	345 24 62.6	56.2	59.3	75.6	47.5	58.3	59.92	26.5949		
		18	Groombridge, 2420	4	- - -	- - -	--	--	--	--	--	- - -	33.1554		
		19	(12)	3	- - -	345 14 64.2	58.2	61.2	76.8	49.4	60.0	61.63	28.2304		30.204
		20	Nadir	- -	- - -	199 59 64.3	58.0	59.3	80.2	47.8	62.8				
		21				64.7	57.6	59.2	79.9	47.2	62.9	62.030	31.4094	31.3771	
		22				64.8	57.8	59.7	79.5	48.0	63.0				
		23				64.7	58.2	59.5	79.1	47.6	63.0				
	13	†24	Comet 1, 1850	3	- - -	349 14 62.9	53.4	58.9	72.6	48.1	59.0	59.15	32.3614	31.4131	30.015
		†25		3	- - -								32.1268		
		26	(19)	3	- - -	- - -	--	--	--	--	--	- - -	30.2753		
		27	(20)	3	- - -	- - -	--	--	--	--	--	- - -	30.9902		
		28	Nadir	- -	- - -	199 59 63.8	53.1	56.2	73.2	45.9	61.0				
		29				63.4	53.1	56.1	72.8	46.0	61.2				
		30				63.5	53.1	56.5	73.3	46.2	61.0	58.875	31.3952	31.4131	
		31				63.6	53.5	56.4	72.9	46.2	61.0				
	30	32	(23)	3	- - -	359 44 60.9	51.3	55.1	70.7	53.3	59.9	58.53	30.4457	31.3973	29.970
		†33	(21)	5	- - -	353 54 60.0	50.1	54.8	68.0	41.5	59.6	56.17	27.0223		
		34	Nadir	- -	- - -	199 59 60.1	48.1	51.2	68.0	42.5	59.1	54.975	31.3174		
		35				60.1	49.1	51.4	68.0	42.6	59.5				
		36	(23)	3	- - -	359 44 59.5	46.5	50.1	64.8	43.5	57.2	53.60	30.3847	31.4011	29.920
July	1	37	(18)	3	- - -	348 44 60.0	47.9	53.6	65.5	44.1	57.5	54.77	30.8455		.930
		38	β Draconis	3	- - -	6 29 60.0	47.1	50.2	65.3	44.2	57.1	53.95	32.4382		.927
		39	Nadir	- -	- - -	199 59 60.8	47.6	50.2	67.2	41.5	59.9	54.533	31.3141		
	2	40	α Aurigæ	3	- - -	13 4 60.0	52.5	54.9	68.4	44.3	59.2	56.55	32.6555	31.3685	29.989
	3	41	(23)	2½	- - -	359 44 47.6	35.2	41.1	54.6	31.8	45.1	42.57	30.2122		.966
		42	(18)	3	- - -	348 44 60.0	49.2	56.2	67.6	44.1	59.1	56.03	30.8347		.971
		43	ε Ursæ Minoris	3	- - -	336 34 60.5	47.5	55.3	66.3	44.0	57.7	55.22	28.6758		.968
		44	γ Draconis	3	- - -	7 24 60.0	49.2	54.0	67.9	43.8	56.9	55.30	33.0547		.970
		45	Nadir	- -	- - -	199 59 60.0	50.7	54.5	70.6	43.8	59.2	56.467	31.3123	31.3685	
July	5	46	(23)	3	- - -	359 44 59.9	47.3	53.1	67.2	44.3	59.2	55.17	30.4349	31.3827	29.960
		47	(21)	3	- - -	353 54 59.8	47.0	53.1	65.2	43.5	59.1	54.62	27.0080		.978
		48	Nadir	- -	- - -	199 59 59.9	48.5	52.2	68.2	42.6	60.1	55.250	31.3071		
	10	49	ε Ursæ Majoris	3	- - -	336 34 60.0	46.5	55.1	66.9	41.1	56.1	54.28	28.6658	31.3531	30.215
		50	γ Draconis	3	- - -	7 24 60.7	50.2	55.5	71.5	42.9	57.5	56.38	33.0885		.228
		51	Nadir	- -	- - -	199 59 58.9	49.8	53.6	71.6	40.9	58.5	55.555	31.2824		
	11	52	β Libræ	3	- - -	67 44 60.0	49.4	55.7	69.5	40.6	57.5	55.45	33.9711	31.3607	30.167
		53	α Coronæ Borealis	3	- - -	31 39 59.9	50.0	54.4	68.5	41.7	57.9	55.40	31.3640		.180
		54	Nadir	- -	- - -	199 59 60.0	50.6	55.1	73.1	41.5	60.5	56.800	31.3098		
		55	β Draconis	3	- - -	6 29 59.8	50.4	55.6	71.2	42.5	57.2	56.12	32.4835		30.190
		56	γ Draconis	3	- - -	7 24 59.5	50.1	55.7	71.6	42.5	56.5	55.98	33.0843		.180
		57	α Lyræ	3	- - -	20 14 60.2	51.0	55.8	70.5	42.8	56.4	56.12	31.6560		.198
	19	58	α Virginis	3	- - -	69 14 60.0	50.5	56.6	69.5	42.8	59.4	56.47	31.0521	31.3641	29.743
		59	Nadir	- -	- - -	199 59 60.2	48.0	51.6	70.3	40.0	58.5	54.842	31.2821		
		60				60.0	48.5	52.0	70.4	40.1	58.5				

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1850.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs	r.	In.
July 19	1	α Herculis	3	. . . .	44 19 60.0	48.8	52.0	67.0	40.1	55.8	53.95	32.1119	31.3641	29.830
	2	γ Draconis	3	. . . .	7 24 60.0	48.5	53.8	69.9	41.1	55.6	54.82	33.1075		.844
23	3	ζ Ursæ Minoris	3	. . . .	340 39 60.0	50.1	54.4	69.4	43.6	58.8	56.05	32.4151	31.3765	.112
	4	γ Draconis	3	. . . .	7 24 60.5	50.1	53.8	70.5	43.5	57.5	55.82	33.1629		30.116
	5	α Lyræ	3	. . . .	20 14 60.0	50.2	54.8	70.1	43.5	57.6	56.03	31.7305		.122
	6	ζ Aquilæ	3	. . . .	45 14 60.0	50.1	53.5	69.9	42.8	57.1	55.57	31.9721		.124
	7	Nadir	- -	. . . .	199 59 60.0	51.9	55.0	72.4	43.5	58.5	56.883	31.3269		
24	8	β Draconis	3	. . . .	6 29 63.5	53.5	57.8	72.3	46.6	59.2	58.82	32.5890	31.3776	30.154
	9	γ Draconis	3	. . . .	7 24 59.5	49.5	53.0	68.5	43.9	56.0	55.07	33.1552		.156
	10	Nadir	- -	. . . .	199 59 60.1	49.8	52.9	70.5	42.5	58.8	55.767	31.3103		
25	11	η Bootis	3	. . . .	39 44 60.0	48.8	48.3	65.5	42.8	59.1	53.95	32.1668	31.4114	30.056
	12	α Bootis	3	. . . .	38 49 60.0	48.2	51.5	65.2	44.5	59.5	54.82	26.2778		.050
	13	ε Bootis	3	. . . .	31 9 60.0	47.8	50.1	65.4	43.1	58.5	54.15	30.6302		
	14	Nadir	- -	. . . .	199 59 60.0	47.9	49.6	67.3	41.4	59.8	54.258	31.3217	31.4114	
	15				60.0	47.9	49.5	67.8	41.6	59.5				
August 9	†16				85 14 59.8	48.0	52.5	68.4	41.6	59.8	55.02	32.9890	30.9568	29.900
	†17	Scorpii, (5901)	3	. . . .	95 54 59.5	58.8	51.3	67.4	41.2	57.1	55.88	25.8688		
	†18	Scorpii, (5915)	3	. . . .	. . .	--	--	--	--	--	--	36.2433		
	19	γ Draconis	3	. . . .	7 24 59.9	45.6	51.3	65.0	42.1	56.0	53.32	32.7770		.899
	20	Sagittarii, (6304)	3	. . . .	83 9 59.6	48.0	51.8	66.1	40.5	55.5	53.58	36.0947		.896
	21	ζ Aquilæ	3	. . . .	45 14 60.0	47.1	51.8	66.1	42.1	56.1	53.87	31.5423		.884
	22	δ Aquilæ	3	. . . .	56 4 61.0	47.1	51.0	67.8	42.1	57.5	54.42	32.2761		.880
	23	Nadir	- -	. . . .	199 59 60.0	47.2	51.0	68.0	41.2	57.9	54.217	30.8648	30.9568	
12	24	Venus, N. L.	3	. . . .	58 24 66.8	54.1	59.6	74.4	47.2	63.9	61.00	31.3210	30.9696	30.108
	25				85 14 60.0	47.5	55.5	69.1	41.4	55.6	54.86	33.0060		.060
	26	Ophiuchi, (5813)	3	. . . .	. . .	--	--	--	--	--	--	34.6097		
	27	Scorpii, (5901)	3	. . . .	95 54 60.5	49.8	55.5	70.1	41.6	56.2	55.62	25.9254		.065
	28	Scorpii, (5915)	3	. . . .	. . .	--	--	--	--	--	--	36.2850		
	†29	γ Draconis	3	. . . .	7 24 57.8	45.0	50.7	66.0	39.4	53.0	51.98	32.7605		.068
	30	Sagittarii, (6304)	3	. . . .	83 9 60.0	48.8	54.4	68.1	40.1	53.9	54.22	36.1283		.060
	31	Sagittarii, (6314)	3	. . . .	. . .	--	--	--	--	--	--	29.3798		
	32	δ Aquilæ	3	. . . .	56 4 60.0	46.1	50.9	69.0	40.2	55.1	53.55	32.2877		.052
	33	Nadir	- -	. . . .	199 59 59.5	46.9	52.1	68.9	40.0	56.6	54.000	30.8742	30.9696	
14	34	β Libræ	3	. . . .	67 39 60.0	46.7	52.5	65.4	40.0	56.6	53.53	28.8090	30.9849	29.874
	35	Moon, N. L.	3	. . . .	73 4 59.5	46.4	51.8	64.0	39.5	53.5	52.78	25.7375		.877
	36	β^1 Scorpii	3	. . . .	78 14 60.0	46.6	53.4	64.3	40.5	54.6	52.23	30.3240		.872
	37	α Scorpii	3	. . . .	84 59 60.1	47.8	55.0	67.6	41.5	56.6	54.77	33.4230		.876
	38	Nadir	- -	. . . .	199 59 61.1	49.8	53.1	71.3	41.4	59.5	56.033	30.9218	30.9849	
16	39	α Lyræ	3	. . . .	20 14 59.8	47.6	52.6	68.3	40.5	55.0	53.97	31.3404	30.9363	
	40	Sagittarii, (6507)	3	. . . .	80 54 59.2	48.2	54.0	68.6	39.3	54.5	53.97	36.4137		30.112
	41	α Aquilæ	3	. . . .	50 24 60.0	48.6	53.9	70.2	41.6	57.1	55.27	31.6121		.122
	42	Nadir	- -	. . . .	199 59 60.0	50.0	53.3	72.3	40.5	58.1	55.70	30.8679		
23	†43	ζ Aquilæ	3	. . . .	45 19 59.8	48.2	51.4	68.8	40.8	55.5	54.08	31.6003	30.9681	29.916
	†44	δ Aquilæ	3	. . . .	56 4 60.9	48.8	51.9	70.9	41.8	56.8	55.18	32.3249		.919
	†45	α Aquilæ	3	. . . .	50 24 60.5	48.5	51.9	70.0	42.1	57.1	55.02	31.6182		.912
	46	Nadir	- -	. . . .	199 59 59.9	48.6	51.9	70.6	40.8	57.2	54.958	30.8879		
	47				59.5	49.5	51.5	71.5	40.8	57.7				
26	48	Sagittarii, (6507)	3	. . . .	80 54 60.0	48.8	51.5	67.5	41.0	53.1	53.65	36.4147	30.9746	.924
	49	δ Aquilæ	3	. . . .	56 4 60.9	46.3	51.0	67.5	41.1	54.5	53.50	32.3088		.931
	50	Lalande, 27221	3	. . . .	81 14 61.1	50.8	53.5	68.0	41.5	53.5	54.73	30.1461		.934
	51	Nadir	- -	. . . .	199 59 60.0	48.0	49.5	69.1	40.6	56.0	53.870	30.8771		
28	52	γ Draconis	3	. . . .	7 24 60.0	46.9	51.4	67.1	40.9	53.4	53.28	32.8060	30.9669	30.284
	53	μ^1 Sagittarii	3	. . . .	79 59 59.9	48.9	51.8	67.4	41.6	53.7	53.88	33.3150		.286
	54	α Lyræ	3	. . . .	20 14 60.1	46.1	52.1	65.6	41.5	52.5	52.98	31.3803		.290
	55	Sagittarii, (6507)	3	. . . .	80 49 60.9	50.1	52.1	69.9	40.9	53.9	54.63	31.7085		.29[illegible]
	56	Nadir	- -	. . . .	199 59 59.8	46.8	50.8	69.2	38.6	54.9	53.142	30.8578		
	57				58.5	47.1	49.7	69.2	38.8	54.8				
29	58	γ Draconis	3	. . . .	7 24 60.0	47.5	50.5	67.4	41.1	53.7	53.37	32.8328	30.9730	.276
	59	μ^1 Sagittarii	3	. . . .	79 59 60.5	49.6	52.5	68.5	42.2	55.1	54.73	33.3404		.274
	60	Sagittarii, (6507)	3	. . . .	80 49 60.4	48.3	51.[illegible]	67.0	39.8	53.5	53.43	31.6729		.275

No. for ref.	Thermometers. At.	Ext.	St.	Up.	Low.	Corrections for— Inst.	Object.	Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	Remarks.
	°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	′ ″		
1	76.2	72.3		74.5	76.5	— 47.01	+ 25.03	44 19 31.97	+ 14 34 7.28	— 12.08	B.	
2	75.5	70.9		74.0	76.0	1 49.60	— 12.44	7 22 52.78	51 30 46.47	16.15		
3	79.0	76.4		78.0	78.5	1 5.30	— 45.47	340 38 5.28	78 15 33.97	20.18		
4	76.2	72.0		75.0	77.0	1 52.31	— 12.53	7 22 50.98	51 30 48.27	17.16		
5	75.6	72.0		74.0	76.5	22.26	+ 0.23	20 14 34.00	38 39 5.26	15.58		
6	75.0	71.5		73.5	76.5	37.51	+ 26.41	45 14 44.47	13 38 54.78	13.52		
7					77.0							
8	77.6	74.2		78.0	77.5	1 16.16	— 13.42	6 28 29.24	52 25 10.01	18.10		
9	76.6	73.1		76.5	77.0	1 51.76	— 12.52	7 22 50.79	51 30 48.46	17.37		
10					77.0							
11	85.0	89.9		85.5	83.5	— 47.49	+ 19.38	39 44 25.84	19 9 13.41	7.50		
12	85.0	87.0			83.0	+ 5 22.74	18.61	38 55 36.17	19 58 3.08	7.73		
13		86.0		85.0	83.5	+ 49.11	10.75	31 10 54.01	+ 27 42 45.24	12.06		
14				84.0	83.0							
15												
16	84.1	81.2		85.5	83.5	— 2 7.76	1 57.52	85 14 44.78	— 26 21 5.53	1.66		16. Very steady.
17		80.4		83.5	84.0	+ 5 19.88	3 35.07	96 3 50.83	37 10 11.58	0.03		17. Do.
18						— 5 32.36	+ 3 32.32	95 52 55.84	— 36 59 16.59	0.36		18. Do.
19	83.7	79.7		82.5	83.5	1 54.43	— 12.25	7 22 46.64	+ 51 30 52.61	20.85		
20	83.2	79.8		82.0	82.5	5 23.01	+ 1 47.24	83 6 17.81	— 24 12 38.56	7.49		
21	82.8	79.4			83.0	36.81	25.80	45 14 42.86	+ 13 38 56.39	16.12		
22	82.6	78.3		81.5	83.0	1 22.96	39.92	56 4 11.38	2 49 27.87	14.95		
23				83.5	82.5							
24	80.1	82.6		81.5	81.5	22.09	46.16	58 25 25.07	+ 0 28 14.18			
25	79.9	77.2		78.5	80.0	2 8.02	1 59.07	85 14 45.91	— 26 21 6.66	1.31		
26						— 3 48.84	1 58.92	85 13 4.94	26 19 25.69	1.79		
27	79.5	72.0				+ 5 17.12	3 39.77	96 3 52.51	37 10 13.26	0.09		
28						— 5 34.16	+ 3 36.95	95 52 58.41	— 36 59 19.16	0.16		
29	79.0	76.0				1 52.59	— 12.41	7 22 46.98	+ 51 30 52.27	21.45		29. One bisection.
30	78.6	75.8		77.5	79.5	— 5 24.94	+ 1 48.66	83 6 17.94	— 24 12 38.69	7.41		
31						+ 1 39.95	1 49.22	83 13 23.39	— 24 19 44.14	7.52		
32	77.9	74.9		87.0		— 1 22.87	40.42	56 4 11.10	+ 2 49 28.15	15.24		
33					79.0							
34	83.5	82.8		83.5	83.0	+ 2 16.79	+ 59.69	67 43 10.01	— 8 49 30.76	4.08		
35	83.2	81.3		83.0	83.0	5 29.89	— 28 11.53	72 42 11.14	13 48 31.89			
36	82.8	80.0		82.5	83.0	+ 41.55	+ 1 28.08	78 17 2.86	19 23 23.61	— 1.13		
37	82.1	79.1		81.5	82.0	— 2 33.28	1 56.55	84 59 18.04	— 26 5 38.79	+ 0.01		
38					80.0							
39					77.0	25.41	0.23	20 14 18.79	+ 38 39 10.46	— 20.99		
40	74.7	69.0			76.5	5 44.35	1 40.41	80 50 50.03	— 21 57 10.78	9.71		
41	75.0	67.4			76.0	42.49	33.13	50 24 45.91	+ 8 28 53.34	17.11		
42					77.0							
43	74.2	70.8			74.0	39.74	26.27	45 14 40.61	13 38 58.64	17.87		43. Beautifully steady.
44	74.0	70.8			74.0	1 25.30	40.56	56 4 10.44	2 49 28.81	16.17		44. Steady.
45	73.8	70.5			74.0	40.87	32.71	50 24 46.86	+ 8 28 52.39	17.79		45. Do.
46												
47					74.0							
48	74.0	68.2			75.5	5 42.00	1 39.99	80 50 51.64	— 21 57 12.39	9.25		
49	74.0	68.0			75.0	— 1 23.88	40.79	56 4 10.41	+ 2 49 28.84	16.35		
50	73.9	68.0			75.0	+ 52.09	+ 1 41 81	81 17 28.63	— 22 23 49.38	10.88		
51					75.0							
52	74.2	68.3			73.0	— 1 55.62	— 12.69	7 22 44.97	+ 51 30 54.28	23.84		
53	73.4	66.9			73.0	2 27.62	+ 1 37.93	79 59 4.19	— 21 5 24.94	6.99		
54	72.0	66.1				25.99	0.25	20 14 27.24	+ 38 39 12.01	22.85		
55	71.9	64.6			72.5	46.62	+ 1 41.89	80 50 49.90	— 21 57 10.65	9.25		
56												
57					72.5							
58	75.0	71.0			73.5	1 56.92	— 12.62	7 22 43.83	+ 51 30 55.42	23.99		
59	74.9	69.8			73.5	2 28.83	+ 1 37.34	79 59 3.24	— 21 5 23.99	7.02		
60	73.4	68.0			73.0	— 44.00	+ 1 41.12	80 50 50.54	— 21 57 11.29	— 9.26		

DATE.	No. for ref.	OBJECT.	Wire observed.	Hour angle.	A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1850.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
August 29	1	Sagittarii, (6726)	3	. . . .	82 [illegible]	4[illegible].4	[illegible]	[illegible]9.1	40.4	53.5	54.12	33.3064	30.9730	30.278
	2	Nadir		. . . .	199 [illegible]	4[illegible].4	4[illegible]	[illegible]	[illegible]	55.8	53.067	30.8627		
30	3	Venus N. L.	3	. . . .	67 34 [illegible]	[illegible]	54.4	70.2	43.5	59.1	56.87	32.5397	30.9709	.212
	4	γ Draconis	3	. . . .	7 24 [illegible]	48.4	[illegible]	[illegible]8.1	41.9	54.5	54.20	32.8358		.158
	5	μ¹ Sagittarii	3	. . . .	79 59 [illegible]	49.4	51.9	67.5	41.4	54.5	54.12	33.3090		.159
	6	α Lyræ	3	. . . .	20 14 [illegible]	4[illegible]	[illegible]	[illegible]	41.4	53.3	53.40	31.3817		.160
	7	Sagittarii, (6507)	3	. . . .	80 49 [illegible]	4[illegible].1	52.[illegible]	[illegible].1	[illegible]	54.0	53.98	31.6686		.160
	8	Nadir		. . . .	199 59 [illegible]	48.[illegible]	[illegible]	69.1	40.2	56.0	54.433	30.8823		
	9				[illegible]	49.1	[illegible]	69.7	40.5	56.1				
31	10	β Draconis	3	. . . .	[illegible]	4[illegible]	[illegible]	[illegible]	40.[illegible]	54.0	52.68	32.2002	30.9875	.034
	11	γ Draconis	3	. . . .	7 24 [illegible]	48.2	[illegible]	66.1	40.9	54.6	52.97	32.8358		.026
	12	α Lyræ	3	. . . .	[illegible] 14 [illegible]	48.2	[illegible]	65.7	41.0	54.1	52.90	31.4149		.028
	13	Sagittarii, (6507)	3	. . . .	[illegible] 4[illegible]	4[illegible]	52.[illegible]	[illegible]7.8	40.0	54.4	54.03	31.6583		.030
	14	δ Aquilæ	3	. . . .	[illegible] 4 [illegible]	[illegible]	50.1	[illegible]	41.5	54.8	53.52	32.3138		.030
	15	Nadir		. . . .	199 [illegible]	47.[illegible]	[illegible]	[illegible]7.1	40.1	56.8	53.883	30.8902		
	16				[illegible]	47.8	[illegible]	67.6	40.1	56.7				
Sept. 2	17	Sagittarii, (6507)	..	. . . .	[illegible] 49 [illegible]	4[illegible]	51.8	68.8	40.2	54.0	54.00	31.6610	30.9823	.109
	18	δ Aquilæ	3	. . . .	[illegible] 4 [illegible]	46.7	4[illegible]	68.2	40.9	54.8	53.37	32.3116		.110
	19	α Aquilæ	.	. . . .	50 24 [illegible]	47.2	50.4	66.5	40.9	55.3	53.40	31.6294		.112
	20	Nadir		. . . .	[illegible]	4[illegible]	50.7	68.1	39.8	56.2	53.617	30.8808		
	21				[illegible]	47.1	50.5	68.0	40.2	56.1				
3	22	Polaris, S. P.	1	— 13 47.[illegible]	[illegible] 25 [illegible]	46.[illegible]	51.4	65.7	40.7	52.9		30.191		.170
	23		2	— 9 58.[illegible]	[illegible]	45.[illegible]	51.[illegible]	65.8	40.5	53.1		.401		.166
	24		3	— [illegible]	[illegible]	46.1	51.4	65.8	40.2	53.0	52.74	.488	30.9678	.166
	25		4	— 9 47.[illegible]	[illegible]	45.[illegible]	51.4	65.9	40.0	52.9		.412		.167
	26		5	— [illegible]	[illegible]	45.9	52.8	65.1	40.8	52.8		.165		.168
	27	μ¹ Sagittarii	3	. . . .	79 59 [illegible]	48.8	51.9	68.4	42.0	54.1	54.20	33.2954		.145
	28	α Lyræ	3	. . . .	20 14 60.0	47.6	51.9	66.7	42.2	53.9	53.58	31.3955		.150
	29	Sagittarii, (6507)	3	. . . .	80 49 [illegible]	48.[illegible]	51.[illegible]	68.9	40.5	53.4	53.88	31.6754		.154
	30	δ Aquilæ	3	. . . .	56 4 59.9	4[illegible].8	50.9	68.9	40.2	53.5	53.37	32.3212		30.150
	31	α Aquilæ	3	. . . .	50 24 60.0	48.[illegible]	51.9	68.5	41.9	55.0	54.27	31.6405		.150
	32	Nadir		. . . .	199 59 60.1	48.0	51.1	69.1	39.9	55.8	54.183	30.8753	30.9678	
	33				[illegible]	48.[illegible]	51.9	70.1	40.0	55.8				
4	34	μ¹ Sagittarii	3	. . . .	79 59 [illegible]	4[illegible].2	51.3	67.5	42.1	54.8	54.23	33.2837	30.9789	30.042
	35	α Lyræ	3	. . . .	20 14 [illegible]	[illegible].1	50.0	65.4	41.7	54.0	52.87	31.3988		.048
	36	Sagittarii, (6507)	3	. . . .	80 49 5[illegible]	48.0	51.1	67.1	40.5	53.8	53.40	31.6348		.046
	37	Sagittarii, (6726)	3	. . . .	82 39 59.[illegible]	47.1	5[illegible].0	65.8	39.2	53.0	52.50	31.2950		.048
	38	Nadir		. . . .	199 59 [illegible]	47.1	50.0	67.1	40.5	56.0	53.608	30.8772		
	39				60.[illegible]	47.5	50.[illegible]	68.0	40.7	56.5				
5	40	Serpentis, (6066)	3	. . . .	82 49 61.0	48.1	50.5	67.0	40.1	53.1	53.30	34.1971	30.9759	29.914
	41	μ¹ Sagittarii	3	. . . .	79 59 60.9	50.1	51.9	68.8	41.9	55.0	54.77	33.2692		.916
	42	Sagittarii, (6507)	3	. . . .	80 49 60.0	48.0	51.2	67.1	40.2	54.1	53.43	31.6338		.918
	43	Nadir		. . . .	199 59 60.0	46.1	49.9	67.2	39.8	55.2	53.033	30.8651		
6	44	μ¹ Sagittarii	3	. . . .	79 59 60.8	48.4	51.0	66.9	41.9	54.9	53.98	33.7779	31.4834	30.092
	45	α Lyræ	3	. . . .	20 14 60.0	45.1	49.8	65.0	41.5	54.0	52.57	31.9235		.100
	46	Sagittarii, (6507)	3	. . . .	80 49 61.0	48.2	51.1	67.8	40.3	54.1	53.76	32.1361		.102
	47	δ Aquilæ	3	. . . .	56 4 60.0	46.2	50.0	67.1	42.0	54.4	53.28	32.8061		.106
	48	α Aquilæ	3	. . . .	50 24 60.0	46.1	49.0	65.0	40.8	54.4	52.55	32.1048		.110
	49	Nadir		. . . .	199 59 60.0	47.6	50.0	67.0	39.9	56.8	53.550	31.3808		
10	†50	γ Draconis	3	. . . .	7 24 60.1	47.8	51.2	68.8	41.9	53.5	53.88	32.8415	30.9631	30.024
	†51	μ¹ Sagittarii	3	. . . .	79 59 60.0	49.1	52.2	69.0	42.1	54.1	54.42	33.2813		.024
	†52	α Lyræ	3	. . . .	20 14 60.0	47.2	50.9	67.5	42.1	53.4	53.52	31.4018		.038
	53	Sagittarii, (6507)	3	. . . .	80 49 59.8	48.0	51.5	68.4	39.6	52.9	53.37	31.6400		.044
	54	α Aquilæ	3	. . . .	50 24 59.5	46.5	50.0	66.5	40.9	54.5	52.98	31.5992		.052
	55	Nadir	3	. . . .	199 59 60.0	47.6	51.1	69.8	40.3	54.9	53.950	30.8669		
11	56	μ¹ Sagittarii	3	. . . .	79 59 60.0	48.5	51.5	67.5	42.1	54.2	53.97	33.2740	30.9841	30.048
	57	α Lyræ	3	. . . .	20 14 60.6	46.7	50.8	66.5	42.1	54.3	53.50	31.4172		.060
	58	Sagittarii, (6507)	3	. . . .	80 49 60.0	47.6	51.6	67.1	40.2	53.5	53.23	31.6431		.068
	59	Nadir		. . . .	199 59 60.0	47.5	49.9	68.1	40.2	56.2	53.650	30.8831		
12	60	α Herculis	3	. . . .	44 19 59.0	47.5	49.9	67.7	40.2	53.4	52.95	31.7777	30.9713	30.127

THERMOMETERS.					CORRECTIONS FOR—		Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
t.	Ext.	St.	Up.	Low.	Inst.	Object.					
°	°	°	°	°	' '	' "	° ' "	° ' "	° ' "		
6	66.5			72.0	2 26.70	+ 1 49.31	82 39 16.76	− 23 45 37.57	− 10.55	B.	
				72.0							
9	77.5			76.5	1 38.63	+ 1 2.72	67 34 20.96	− 8 40 41.71			
9	70.3			73.5	1 57.24	− 12.59	7 22 44.37	+ 51 30 54.88	24.12		
5	70.0			73.0	2 27.05	+ 1 36.93	79 59 4.00	− 21 5 24.75	7.02		
0	69.5			72.5	25.83	0.23	20 14 27.80	+ 38 39 11.45	23.20		
5	69.1			72.5	43.86	+ 1 40.48	80 50 50.60	− 21 57 20.60	9.25		
				72.5							
4	75.9			76.5	1 16.24	− 13.32	6 28 23.12	+ 52 25 16.13	23.84		
0	75.1			76.3	1 56.20	− 12.42	7 22 44.35	51 30 54.90	24.23		
5	74.4			76.0	26.87	+ 0.23	20 14 26.26	+ 38 39 12.99	23.35		
1	74.2			75.5	42.17	1 39.14	80 49 54.03	− 21 57 11.75	9.24		
9	74.2			75.3	1 23.38	40.45	56 4 10.59	+ 2 49 28.66	16.82		
				75.0							
5	71.9			75.0	42.67	1 39.83	80 50 51.16	− 21 57 11.91	9.17		
0	71.0			74.7	1 23.57	40.80	56 4 10.60	+ 2 49 28.65	16.92		
5	71.1			74.5	− 40.68	+ 32.88	50 24 45.60	8 28 53.65	− 18.85		
				74.5							
0	75.5			76.0	+ 28.87	+ 1 12.64					
0	75.4				30.62	.65					
0	75.5				30.32	.63	327 24 10.38	+ 88 30 31.13	+ 4.48		
0	75.9				30.34	.58					
1	75.8				+ 31.15	− 1 12.60					
4	77.9			73.5	− 2 26.33	+ 1 35.47	79 59 3.34	− 21 5 24.09	− 6.92		
5	65.7			72.0	26.89	0.23	20 14 26.92	+ 38 39 12.33	23.65		
5	65.0			71.0	44.49	1 41.34	80 50 50.73	− 21 57 11.48	9.10		
6	64.5			71.0	1 25.09	41.37	56 4 9.65	+ 2 49 29.60	16.94		
0	63.2			70.5	42.29	33.44	50 24 45.42	+ 8 28 53.83	18.90		
				70.6							
3	74.6			76.0	2 24.90	1 35.71	79 59 5.01	− 21 5 25.79	6.86		
9	73.7			75.6	26.40	0.23	20 14 26.70	+ 38 39 12.55	23.72		
5	73.5			75.4	41.23	1 39.33	80 50 51.49	− 21 57 12.24	9.02		
8	71.5			75.0	2 25.61	1 47.45	82 39 14.34	23 45 35.09	10.24		
				75.0							
0	74.1			75.5	3 22.50	1 47.13	82 48 17.93	23 54 38.68	5.00		
9	74.0			76.0	2 24.18	1 35.43	79 59 6.02	21 5 26.77	6.81		
0	72.5				41.36	1 39.09	80 50 51 16	21 57 11.91	8.94		
				76.0							
5	78.4			76.4	2 24.25	1 35.20	79 59 4.93	− 21 5 25.68	6.78		
0	72.2			75.5	27.65	0.23	20 14 25.15	+ 38 39 11.10	23.86		
0	71.1			75.5	41.03	1 39.95	80 50 52.68	21 57 13.43	8.59		
2	70.5				1 23.16	40.83	56 4 10.95	+ 2 49 28.30	16.96		
5	70.0			74.5	39.07	+ 32.97	50 24 46.43	8 28 52.82	19.01		
				74.5							
2	69.4				1 58.09	− 12.56	7 22 43.23	+ 51 30 56.02	24.88		50. Unsteady.
0	69.0			71.5	2 25.74	+ 1 36.71	79 59 5.39	− 21 5 26.14	6.83		51. Do.
0	67.9			71.0	27.58	0.23	20 14 26.17	+ 38 39 13.08	24.33		52. Do.
5	67.0			71.0	42.56	1 40.57	80 50 51.38	− 21 57 12.13	8.83		
5	66.3			71.0	39.99	33.13	50 24 46.12	+ 8 28 53.13	19.31		
				71.0							
2	70.0			72.5	2 23.97	1 36.60	79 59 6.60	− 21 5 27.35	6.85		
1	69.0			72.5	27.23	0.23	20 14 26.50	+ 38 39 12.75	21.45		
9	67.6			72.0	41.43	1 40.54	80 50 52.34	− 21 57 13.09	8.82		
				72.0							
0	67.0			70.5	− 50.70	+ 25.55	44 19 27.80	+ 14 34 11.45	− 16.17		

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1850.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
Sept. 12	1	β Draconis	3	. . .	6 29 60.0	48.8	52.8	70.0	42.1	54.9	54.77	32.2190	30.9713	30.126
	2	Nadir	. .	. . .	199 59 60.0	47.5	49.8	71.5	39.9	56.2	54.150	30.8782		
13	3	β Draconis	3	. . .	6 29 59.9	47.9	51.8	70.0	41.1	53.6	54.05	32.1917	30.9597	30.030
	4	Moon, N. L.	3	. . .	78 59 60.0	48.8	52.0	70.1	40.5	53.6	54.17	27.1290		.028
	5	μ Sagittarii	3	. . .	79 59 60.0	48.9	51.9	69.9	40.5	53.5	54.11	33.3102		.028
	6	α Lyræ	3	. . .	20 14 60.0	47.8	52.1	69.9	41.1	53.7	54.10	31.4300		.026
	7	Nadir	. .	. . .	199 59 60.0	48.5	51.8	71.1	40.1	56.5	54.667	30.8749		
16	8	α Lyræ	4	. . .	20 14 59.9	47.0	51.5	67.8	40.7	52.9	53.30	31.4238	30.9707	30.064
	9	Sagittarii, (6507)	3	. . .	80 49 60.1	49.5	53.5	70.0	41.1	53.1	54.55	31.6977		.064
	10	δ Aquilæ	3	. . .	56 4 60.0	48.0	52.0	70.8	41.5	54.1	54.40	32.3528		.164
	11	Sagittarii, (6742)	3	. . .	75 19 60.0	51.1	55.6	72.8	42.0	53.1	55.77	30.6111		.170
	12	α^2 Capricorni	3	. . .	71 59 60.0	51.4	54.0	71.5	42.1	54.5	55.58	33.2590		.170
	†13	Nadir	. .	. . .	199 59 60.6	50.2	53.2	72.8	41.8	54.5	55.300	30.8959		
17	14	μ^1 Sagittarii	3	. . .	80 0 28.5	19.8	24.6	36.5	12.2	19.8	23.57	33.7787	30.9688	30.120
	15	α Lyræ	3	. . .	20 14 59.9	47.5	54.4	65.4	43.1	50.2	53.42	31.4395		.126
	16	δ Aquilæ	3	. . .	56 4 59.6	47.1	54.2	67.1	43.4	50.5	53.65	32.3502		.120
	17	Nadir	. .	. . .	199 59 60.0	50.3	55.9	69.9	43.9	53.0	} 55.592	30.8987		
	18		. .	. . .	60.2	50.9	55.9	70.0	44.1	53.0				
21	19	α Cygni	3	. . .	14 9 60.2	51.6	56.8	66.0	46.0	52.5	55.52	32.3110	30.9761	30.241
	†20	β Aquarii	3	. . .	65 4 60.9	49.4	56.0	66.8	44.5	51.0	54.77	29.8410		.242
	21	Neptune	3	. . .	69 19 58.4	49.5	56.0	65.8	44.0	50.9	54.10	32.8582		.245
21	22	Nadir	. .	. . .	199 59 60.0	49.8	55.1	69.2	43.5	54.4	55.333	30.9019	30.9761	
23	23	μ^1 Sagittarii	3	. . .	79 59 56.5	45.5	50.6	60.5	40.7	48.6	50.40	33.2378	30.9749	30.160
	24	α Lyræ	3	. . .	20 14 60.1	46.9	53.2	64.8	43.5	52.9	53.57	31.4455		.156
	†25	δ Aquilæ	3	. . .	56 4 60.0	45.9	52.1	66.3	41.8	52.5	53.10	32.3256		.154
	26	ε Pegasi	3	. . .	49 39 60.0	51.0	55.4	69.2	45.4	55.0	56.00	29.6292		.134
	27	Piscis Australis, (7714)	3	. . .	92 9 60.5	52.5	57.5	70.5	45.0	52.6	56.43	33.3400		.140
	28	Neptune	3	. . .	69 19 60.4	52.0	58.0	70.1	44.5	53.3	56.38	31.8672		.138
	29	Nadir	. .	. . .	199 59 60.5	51.8	55.8	72.0	44.1	55.8	} 56.575	30.9204		
	30				60.5	51.2	56.0	71.8	44.1	55.1				
24	31	Venus, N. L.	3	. . .	78 34 60.0	49.3	53.1	64.8	43.3	54.1	54.10	31.3048	30.9876	.045
	32	γ Aquilæ	3	. . .	48 39 60.0	47.2	48.1	67.8	41.1	55.9	53.35	33.0674		.050
	33	α Cygni	3	. . .	14 9 60.2	48.0	51.5	65.4	40.8	54.2	53.35	32.2984		.044
	34	Piscis Australis, (7714)	3	. . .	92 9 59.2	49.1	51.0	68.5	40.9	52.8	53.58	33.2321		.040
	35	Neptune	4	. . .	69 19 60.0	49.1	53.0	68.6	41.8	54.5	54.50	31.3348		.044
	36	Nadir	. .	. . .	199 59 60.5	46.6	50.0	68.1	39.8	57.0	} 53.658	30.8867		
	37				60.4	47.3	49.1	68.2	40.1	56.8				
25	†38	Pallas	3	. . .	57 9 60.9	51.1	52.4	70.5	45.9	59.5	56.72	30.8108	30.9822	29.996
	39	Neptune	3	. . .	69 19 60.0	50.1	53.5	69.5	43.2	57.0	55.55	30.8145		30.010
	40	Nadir	. .	. . .	199 59 59.54	49.40	51.90	70.22	42.52	59.35	55.488	30.9104		
October 1	41	ζ Aquilæ	3	. . .	45 14 59.2	50.6	54.0	71.6	42.7	53.4	55.25	31.6567	30.9600	30.129
	42	δ Aquilæ	3	. . .	56 4 60.0	49.8	51.5	72.4	43.0	54.5	55.70	32.3545		.124
	†43	Neptune	3	. . .	69 24 60.0	54.2	58.2	75.4	45.1	56.1	58.22	32.8470		.100
	44	Nadir	. .	. . .	199 59 59.96	50.10	54.86	73.10	41.36	56.30	} 55.932	30.8953		
	45				59.50	50.30	54.80	73.20	41.60	56.10				
2	46	Venus, N. L.	3	. . .	81 19 65.1	58.0	60.5	76.3	48.6	59.9	61.40	32.2676	30.9764	29.884
	†47	Piscis Australis, (7714)	3	. . .	92 9 60.0	52.2	55.8	73.0	43.4	55.3	56.62	33.3341		.978
	48	Neptune	3	. . .	69 24 60.2	51.9	56.8	73.0	44.6	56.5	57.17	32.4158		.978
	49	Nadir	. .	. . .	199 59 60.0	49.6	54.7	71.5	43.3	57.8	56.150	30.9152		
3	†50	61^1 Cygni	3	. . .	20 54 59.8	52.5	55.4	72.9	45.0	54.8	56.73	33.5182	30.9661	30.088
	51	Piscis Australis, (7714)	3	. . .	92 9 60.0	54.1	57.9	75.0	45.0	54.2	57.70	33.3990		.100
	52	Neptune	3	. . .	69 24 60.0	54.3	59.1	74.8	46.2	55.1	58.25	32.0174		.100
	53	Nadir	. .	. . .	199 59 59.9	51.8	55.7	74.2	43.3	56.6	} 57.075	30.9196	31.9661	
	54				60.0	52.3	56.1	74.6	43.9	56.5				
4	55		1	− 19 21.0	327 24 59.5	51.9	58.6	69.6	45.8	52.1		30.0590		30.193
	56		$1\frac{1}{2}$	14 21.0								.1710		
	57		2	9 21.0								.2610		.194
	58		$2\frac{1}{2}$	− 4 21.0								.3270		
	59	} Polaris, S. P.	3	+ 0 39.0							} 56.31	.3590	30.9748	.184
	60		$3\frac{1}{2}$	5 39.0								.3390		

THERMOMETERS.					CORRECTIONS FOR—		Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
	Ex.	St.	Up.	Low.	Inst.	Object.					
	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	″		
8	66.2			70.5	— 1 18.44	— 13.62	6 28 22.71	+ 52 25 16.54	— 24.30		
				70.5						B.	
0	64.0			69.2	— 1 17.45	13.64	6 28 22.96	+ 52 25 16.29	24.31		
0	61.9			67.0	+ 4 0.83	— 30 21.13	78 33 33.87	— 19 39 54.62			
5	60.4			66.5	— 2 27.78	+ 1 38.37	79 59 4.70	— 21 5 25.45	6.86		
5	60.0			66.6	29.57	0.25	20 14 24.78	+ 38 39 14.47	24.65		
				67.5							
2	60.0			66.0	28.61	0.25	20 14 24.94	+ 38 39 14.31	24.79		
2	60.0			64.0	45.70	1 42.05	80 50 50.90	— 21 57 11.65	8.67		
2	58.0			64.0	— 1 26.89	41.90	56 4 9.41	+ 2 49 29.84	17.44		
1	57.8			64.0	+ 22.61	1 23.19	75 21 41.57	— 16 28 2.32	12.05		
0	57.8				— 2 23.87	1 13.56	71 58 45.27	13 5 6.02	14.36		
				64.0							13. Mercury unsteady.
3	63.2			66.5	2 56.65	1 38.13	79 59 5.05	— 21 5 25.80	6.73		
3	61.0			66.0	29.59	0.25	20 14 24.08	+ 38 39 15.17	24.82		
0	57.7			64.2	1 26.85	+ 41.90	56 4 8.70	2 49 30.55	17.43		
				66.0							
2	61.4			67.0	— 1 23.92	— 5.89	14 8 25.71	+ 44 45 13.54	25.99		
6	58.5			66.5	+ 1 11.36	+ 57.85	65 7 3.98	— 6 13 24.73	17.54		20. Very unsteady; one bisection.
5	57.8			65.8	— 1 58.32	1 6.85	69 19 2.63	— 10 25 23.38			
				65.5							
5	68.5			71.0	2 22.23	1 37.23	79 59 5.40	— 21 5 26.15	6.63		
6	66.0			70.5	29.59	0.25	20 14 24.23	+ 38 39 15.02	25.00		
0	63.5			69.6	— 1 24.92	41.46	56 4 9.64	2 49 29.61	17.44		25. Very unsteady.
5	56.0			63.8	+ 1 24.60	32.94	49 41 53.54	+ 9 11 45.71	20.61		
2	57.0			64.5	— 2 28.69	2 56.84	92 10 24.58	— 33 16 45.33	12.42		
0	56.7			65.0	56.10	1 6.81	69 20 7.09	10 26 27.84			
4	78.3			74.0	19.94	1 31.28	78 36 5.44	— 19 42 26.19			
7	69.0			71.5	2 10.75	+ 30.66	48 38 13.26	+ 10 15 25.99	20.07		
2	68.0			71.4	1 22.41	— 5.77	14 8 25.17	+ 44 45 14.08	26.53		
2	67.3			71.5	2 21.11	+ 2 52.72	92 10 25.19	— 33 16 45.94	12.29		
0	67.0			71.4	— 22.01	1 5.28	69 20 37.77	— 10 26 58.42			
				71.0							
0	70.6			73.5	+ 10.78	40.13	57 10 47.63	+ 1 42 51.62			38. Extremely faint.
2	70.0			73.0	+ 10.54	1 4.84	69 21 10.93	— 10 27 31.68			
				73.0							
2	58.5			65.0	— 43.80	27.10	45 14 38.55	+ 13 39 0.70	20.04		
1	58.0			64.5	1 27.67	41.88	56 4 19.91	+ 2 49 29.34	17.54		
1	51.8			60.5	1 58.63	1 7.54	69 24 7.13	— 10 30 27.88			43. Indistinct.
				63.5							
0	70.0			67.5	1 21.76	1 42.58	81 20 22.22	22 26 42.97			
9	58.1			63.0	2 28.22	2 55.54	92 10 23.94	33 16 44.69	11.13		47. Unsteady.
0	56.2			63.0	1 30.49	1 6.70	69 24 33.38	— 10 30 54.13			
				67.0							
5	50.9			61.0	2 40.44	0.13	20 52 16.42	+ 38 1 22.83	29.14		50. Very unsteady.
0	50.0			60.0	2 32.94	2 59.09	92 10 23.85	— 33 16 44.60	11.05		
5	49.6			58.0	— 1 6.09	+ 1 7.88	69 25 0.04	— 10 31 20.79			
				61.0							
				59.5							
2	67.0			63.5	+ 38.23						
					39.92						
5	66.0			63.5	40.42						
					39.87	— 1 14.01	327 24 21.16	+ 88 30 41.91	— 6.59		
.7	66.0			63.5	38.88						
					38.60						

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1850.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
Oct. 4	1		4	10 39.0								30.2580		30.184
	2		4½	15 39.0								.1850		
	3		5	+ 20 39.0	327 24 59.4	51.8	58.8	69.5	46.6	52.1		.0510		.182
	† 4	Venus, N. L.	3	. . .	81 54 60.0	52.8	56.9	69.6	45.2	53.5	56.33	30.9279	30.9748	30.146
	5	Nadir	. .	. . .	199 59 60.0	50.1	55.8	69.8	44.3	55.1	55.992	30.9110	30.9748	
	6				59.7	50.5	56.1	70.5	44.7	53.3				
	† 7	ε Pegasi	3	. . .	49 39 59.6	52.0	56.0	70.4	46.4	54.8	56.53	29.6390	30.9803	30.130
	† 8	Piscis Australis, (7714) . .	3	. . .	92 9 60.0	53.0	58.9	71.8	45.9	52.9	57.08	33.3509		.129
	† 9	Neptune	3	. . .	69 24 59.9	52.9	59.5	71.6	46.7	54.5	57.52	31.5303		.130
	10	α Pegasi	3	. . .	44 29 60.0	51.2	56.8	69.2	45.0	52.2	55.73	31.9317		.026
	11	Nadir	. .	. . .	199 59 60.2	52.1	58.2	72.7	45.5	55.3	57.383	30.9387	30.9803	
	12				60.4	52.5	58.0	72.8	45.6	55.3				
5	†13	Venus, N. L.	3	. . .	82 14 60.0	52.2	56.1	68.5	45.0	52.0	55.75	33.2952	30.9711	29.974
	†14	Neptune	3	. . .	69 24 60.0	52.9	57.5	70.0	47.1	54.5	57.00	31.0741		29.942
	15	Nadir	. .	. . .	199 59 60.0	51.5	57.4	69.5	45.5	55.0	56.650	30.9178	30.9711	
	16				59.9	51.9	57.4	71.0	46.0	54.7				
7	†17		1	− 19 33.0								29.9650		30.276
	18		1½	14 18.0								30.1000		
	19		2	9 48.0								.2090		.266
	20		2½	− 4 18.0								.2410		
	21	Polaris, S. P.	3	+ 10.0	327 24 59.9	51.0	58.2	70.9	44.6	53.0	56.27	.2700	30.9597	.270
	22		3½	5 42.0								.2550		
	23		4	10 10.0								.2000		.267
	24		4½	15 42.0								30.1050		
	†25		5	+ 19 54.0								29.9680		30.262
	26	Nadir	. .	. . .	199 59 60.4	52.3	59.1	73.1	44.6	55.1	57.483	30.9197	30.9597	
	27				60.1	52.5	58.5	73.1	45.9	55.1				
	†28	Venus, N. L.	3	. . .	82 44 59.5	53.0	58.2	71.8	44.8	52.0	56.55	30.1339		.264
	†29	ε Pegasi	3	. . .	49 39 60.0	52.9	61.1	72.1	48.0	52.9	57.83	29.6359	30.9299	.262
	30	Piscis Australis, (7714) . .	3	. . .	92 9 59.1	55.0	62.2	72.9	47.8	49.1	57.68	33.4084		.268
	31	Neptune	3	. . .	69 24 59.4	55.5	64.1	73.0	49.9	51.1	58.83	30.3455		.268
	32	α Piscis Australis	3	. . .	89 14 60.0	57.0	62.2	71.8	49.1	50.0	58.33	30.1705		.268
	33	Nadir	. .	. . .	199 59 60.4	56.2	62.8	74.7	47.6	52.4	59.042	30.9147	30.9299	
	34				60.5	56.2	62.4	74.8	48.1	52.4				
8	†35	Venus, N. L.	3	. . .	83 4 60.0	53.3	62.5	68.2	48.1	49.1	56.87	33.9933	30.9549	30.200
	†36	α Aquarii, ...	3	. . .	59 54 60.1	53.0	62.8	68.4	48.8	50.2	57.22	30.6320		.174
	†37	Neptune	3	. . .	69 24 60.4	55.7	65.8	71.1	51.0	50.1	59.02	29.9308		.166
	38	Nadir	. .	. . .	199 59 60.0	53.3	61.8	70.0	47.9	50.5	57.250	30.9202	30.9549	
	39		1	− 19 26.0	327 24 59.7	52.9	63.7	67.0	50.4	49.0		30.0500		30.180
	40		1½	14 14.0								.1600		
	41		2	9 36.0								.2510		.176
	42		2½	− 4 14.0								.3050		
	43	Polaris, S. P.	3	+ 20.0							57.41	.3400	30.9640	.170
	44		3½	5 46.0								.3180		
	45		4	10 15.0								.2610		.166
	46		4½	15 46.0								.1550		
	47		5	+ 20 4.0	327 24 60.0	53.4	63.5	70.3	50.3	48.7		.0350		30.166
9	48	Venus, N. L.	3	. . .	83 19 60.3	57.0	62.5	71.1	50.5	52.5	57.94	33.5549		.131
	49				59.8	54.2	60.1	67.9	49.0	50.4				
	50	Nadir	. .	. . .	199 59 60.2	52.5	61.8	67.1	47.0	50.9	56.825	30.9135	30.9640	
	51				60.3	53.1	61.4	68.1	48.3	51.2				
	†52	α Aquarii	3	. . .	59 54 60.0	53.6	61.1	68.6	48.9	52.1	57.38	30.6849	30.9751	.154
	53	Neptune	3	. . .	69 24 60.2	55.9	63.0	71.1	51.0	52.1	58.88	29.5588		.150
	54	α Piscis Australis	3	. . .	89 14 60.0	56.9	61.9	69.9	50.1	51.0	58.30	30.1464		.150
	55	Nadir	. .	. . .	199 59 60.0	52.3	59.4	72.3	46.6	53.0	57.292	31.9320	30.9751	
	56				59.9	53.4	59.8	70.7	47.6	52.5				
10	57	Venus, N. L.	3	. . .	83 34 60.0	54.1	56.5	71.2	46.3	58.8	57.82	33.6296		30.218
12	†58	Sagittarii, (6461)	3	. . .	80 9 59.9	54.0	56.9	71.0	46.1	54.6	57.08	31.1535	30.9675	29.830
	†59	Moon, S. L.	3	. . .	80 4 61.0	55.0	58.8	71.9	48.0	56.5	58.87	30.7395		.832
	†60	α Aquilæ	3	. . .	50 24 60.3	50.5	55.2	69.0	45.3	56.2	56.08	31.6910		.842

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1850.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
Oct. 12	1	Neptune	3	. . .	69 24 60.8	54.1	59.2	73.0	46.1	56.9	58.35	28.4134	.	29.876
	2	Nadir	. .	. . .	199 59 59.5	51.3	55.7	72.5	43.8	56.7	56.658	31.9143	30.9675	
	3				59.4	52.0	55.3	73.0	43.9	56.7				
	4	α Cygni	3	. . .	14 9 60.0	52.5	57 5	70.7	45.1	54.7	56.75	32.3728	30.9585	29.912
	5	Moon, S. L.	3	. . .	77 4 60.1	53.1	59.3	72.2	46.1	54.8	57.62	33.3561		.920
14	6	ε Pegasi	3	. . .	49 39 60.0	51.4	57.2	70.2	44.9	55.6	56.55	29.6286		29.931
	†7	Neptune	3	. . .	69 24 60.0	53.1	59.9	73.4	45.9	55.0	57.88	27.7130		.948
	8	Nadir	. .	. . .	199 59 60.0	52.9	57.6	74.6	44.2	55.8	57.600	30.9203	30.9585	
	9				60.1	53.4	57.6	74.4	44.7	55.9				
15	†10	Venus, N. L.	3	. . .	84 39 61.0	53.1	59.1	72.6	46.2	55.5	57.92	32.1574	30.9736	30.091
	†11	ε Pegasi	3	. . .	49 39 60.6	51.7	57.5	70.4	45.7	55.9	56.97	29.6324		.120
	12	Nadir	. .	. . .	199 59 60.3	50.3	56.6	70.8	43.4	55.3	56.375	30.9159	30.9736	
	13				60.8	51.3	56.7	70.8	44.5	55.7				
	†14	Moon, S. L.	3	. . .	74 19 60.1	52.2	58.9	72.5	45.8	53.8	57.22	33.5465		.120
	†15	Neptune	3	. . .	69 24 60.0	53.1	59.1	72.0	46.2	53.8	57.37	27.4080	30.9508	.110
	16	Polaris	1	− 19 59.0	330 19 60.0	52.1	60.1	72.7	45.1	53.1	57.54	27.384		30.090
	17		2	10 8.0								.130		
	18		3	− 8.0								.042		
	19		4	+ 9 46.0								.105		
	20		5	+ 19 36.0	330 19 59.8	53.9	59.9	74.3	45.6	53.9		27.348		
	21	Nadir	. .	. . .	199 59 60.0	53.5	60.3	71.4	46.2	51.4	57.158	30.9056	30.9508	
	22				59.9	53.6	60.0	71.4	46.4	51.8				
16	23	Venus, N. L.	3	. . .	84 49 59.8	52.5	60.6	70.9	49.0	53.5	57.72	30.5206	30.9703	30.036
	24	Neptune	3	. . .	69 24 61.0	53.4	60.1	71.0	48.1	54.8	58.07	27.0499		.060
	†25	Flora	3	. . .	71 4 60.0	51.1	57.8	68.9	47.0	53.6	56.40	33.7204		.000
	26	Nadir	. .	. . .	199 59 59.9	50.0	56.9	69.4	45.2	55.0	56.125	30.9087	30.9703	
	27				59.7	50.2	56.8	69.8	45.5	55.1				
19	28	Neptune	3	. . .	69 24 58.5	54.8	61.0	71.9	48.2	53.0	57.90	26.1871	30.9582	29.830
	29	Nadir	. .	. . .	199 59 60.0	53.9	59.5	74.0	45.9	55.9	58.775	30.9387	30.9582	
	30				61.0	55.2	60.4	74.9	48.0	56.6				
21	†31	Neptune	4	. . .	69 24 59.8	56.0	62.1	74.5	48.6	53.5	59.08	25.6185	30.9571	30.040
	†32	Flora	3	. . .	71 4 59.9	55.5	62.0	72.9	48.8	52.9	58.67	32.8653		.036
	†33	Nadir	. .	. . .	199 59 60.0	54.2	60.7	73.5	46.4	53.9	58.208	30.9286	30.9571	
	†34				59.9	54.9	60.6	73.4	47.1	53.9				
22	35	Nadir	. .	. . . .	19 59 60.1	53.1	61.0	69.1	47.7	51.7	57.067	30.9251	30.9717	
	36				60.0	53.5	60.0	69.0	48.0	51.6				
	†37	Venus, N. L.	3	. . .	85 49 59.8	53.8	62.2	69.5	50.6	49.5	57.57	31.9168		29.880
	38	61¹ Cygni	3	. . .	20 49 60.1	53.9	60.3	67.9	50.1	51.0	57.22	28.7953		.872
	†39	Neptune	3	. . .	69 29 60.8	54.9	63.4	68.9	51.3	52.1	58.57	30.1182		.870
	40	Nadir	. .	. . .	199 59 60.0	52.0	59.7	69.1	47.7	52.6	56.850	30.9394	30.9895	
	41				59.7	52.6	59.1	69.2	48.0	52.5				
	†42	Flora	3	. . .	71 4 60.4	53.1	61.1	68.9	49.9	52.4	57.63	32.4211		.860
28	†43	Venus, S. L.	3	. . .	86 29 59.5	55.6	62.9	72.0	51.1	53.5	59.10	32.6362		
	†44	Venus, N. L.	3	. . .	- - - -	--	--	--	--	--	. .	33.1978	30.9802	30.156
	45	Nadir	. .	. . .	199 59 60.0	52.9	60.6	68.9	49.3	53.1	57.47	30.9400	30.9802	
	†46	Neptune	3	. . .	69 29 59.8	54.9	62.5	69.3	51.1	52.8	58.40			.100
29	†47	Venus, N. L.	3	. . .	86 34 59.1	52.9	56.2	72.5	45.8	54.2	56.78	33.6613		
	†48	Venus, S. L.	3	. . .	- - - -	--	--	--	--	--	. .	33.0968	31.0147	30.214
	49	Nadir	. .	. . .	199 59 60.2	53.3	57.4	72.0	47.3	55.3	57.783	30.9794	31.0147	
	50				61.4	53.4	57.5	72.3	47.9	55.4				
	†51	61¹ Cygni	3	. . .	20 49 60.8	54.2	57.4	72.2	49.0	54.5	58.02	28.8520		.240
	†52	Neptune	3	. . .	69 29 60.0	56.9	59.1	77.9	47.4	55.9	59.53	28.7047	31.0217	.246
	53	Nadir	. .	. . .	199 59 60.53	54.22	58.08	74.03	46.58	56.42	58.310	30.9950	31.0217	
30	†54	Neptune	3	. . .	69 29 60.2	57.2	58.9	77.0	47.5	56.3	59.52	28.5257	31.0272	30.222
	55	Nadir	. .	. . .	199 59 60.07	53.13	57.40	74.10	45.53	55.90	57.688	30.9904	31.0272	
31	†56	Venus, N. L.	3	. . .	86 39 60.0	64.8	62.6	80.8	55.1	56.9	63.37	31.3181		
	†57	Venus, S. L.	3	. . .	- - - -	--	--	--	--	--	. .	30.7875	31.0258	30.204
	58	Nadir	. .	. . .	199 59 59.6	62.1	60.0	80.3	52.2	57.4	61.058	31.0585	31.0258	
	59				59.5	62.7	59.9	81.0	52.1	57.9				
	60	61¹ Cygni	3	. . .	20 49 60.0	63.2	59.2	79.0	54.0	56.8	62.03	28.9325		30.210

No. for ref.	Thermometers. At.	Ext.	St.	Up.	Low.	Corrections for— Inst.	Object.	Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	Remarks.
	°	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	″		
1	61.0	56.5			61.0	+ 2 40.57	+ 1 6.61	69 28 45.53	— 10 35 6.28		B.	
2					61.0							
3												
4	61.5	54.0			61.0	— 1 28.92	— 5.91	14 8 21.92	+ 44 45 17.33	— 29.05		
5	61.0	54.0			61.0	— 2 30.73	— 58 36.67	76 3 50.22	— 17 10 10.97			
6	60.2	53.2			60.8	+ 1 23.61	+ 32.91	49 41 53.07	+ 9 11 46.18	21.63		
7	59.5	52.0			59.4	+ 3 24.04	1 7.40	69 29 29.32	— 10 35 50.07			7. Steady and well defined.
8					60.0							
9												
10	64.5	65.5			64.5	— 1 14.36	1 59.80	84 40 43.36	— 25 47 4 11			10. Unsteady.
11	62.0	51.5			61.0	+ 1 24.32	+ 33.22	49 41 54.51	+ 9 11 44.74	21.61		11. Do.
12					62.5							
13												
14	61.6	51.0			61.0	— 2 41.75	— 57 24.44	73 19 51.03	— 14 26 11.78			14. Do.
15	60.5	50.2			60.0	+ 3 42.73	+ 1 8.01	69 29 48.11	— 10 36 8.86			15. Unsteady and faint.
16	59.9	47.2				4 5.04						
17	58.0	47.0				5.35						
18	57.5	46.9			54.0	5.76	— 1 8.95	330 22 54.32	+ 88 30 44.93	11.04		
19	57.0	46.7				6.55						
20	56.5	46.5				4 5.94						
21					59.0							
22												
23	67.0	72.0			67.0	28.27	+ 1 59.14	84 52 25.13	— 25 58 45.88			
24	65.4	62.0			64.5	+ 4 6.47	1 6.35	69 30 10.89	10 36 31.64			
25	64.6	60.0			63.5	— 2 52.92	1 3.42	71 3 6.90	12 9 27.65			25. Remarkably steady.
26												
27												
28	57.8	48.0			56.0	+ 4 59.95	1 7.73	69 31 5.58	10 37 26.33			
29					57.9							
30												
31	52.2	46.4			54.0	+ 5 35.48	1 8.49	69 31 43.05	10 38 3.80			31. Remarkably steady; three bisections.
32	51.8	42.9			53.0	— 1 59.96	1 6.20	71 4 4.91	12 10 25.66			32. Faint but steady.
33					54.0							
34												33, 34. Mercury unsteady.
35					61.0							
36					59.5							
37	61.0	66.0			63.0	— 59.42	2 5.29	85 51 3.44	— 26 57 24.19			37. Three bisections.
38	60.5	57.1			60.0	+ 2 16.82	0.87	20 52 14.91	+ 38 1 24.34	31.01		
39	60.2	53.4			59.5	+ 54.78	1 7.13	69 32 0.48	— 10 38 21.23			39. Remarkably steady.
40												
41					59.0							
42	60.0	51.9				— 1 30.00	1 4.49	71 4 32.12	12 10 52.87			42. Very steady.
43						1 44.11	1 55.16	86 30 19.15				43, 44. Applied cor. 0″.22 for defective illumination of south limb, three bisections of north limb, two of south limb.
44	59.3	61.1			59.5	— 2 19.42	1 55.33	86 29 35.01	27 36 13.33			
45					59.5							
46	57.5	50.6			55.5	+ 2 15.89	1 8.09	69 33 22.38	10 39 43.03			46. Misty star indistinct.
47						— 2 46.39	1 57.15	86 34 7.54				
48	59.1	55.0			59.0	— 3 10.90	1 57.42	86 34 43.20	— 27 40 46.12			47, 48. Corrected for defective illumination of south limb 0″.21, three bisections of north limb, and two of south limb.
49					59.0							
50												
51	57.0	46.2			55.0	+ 2 15.96	0.90	20 52 14.88	+ 38 1 24.37	31.35		51. Unsteady and faint.
52	52.5	43.4			54.0	2 25.67	1 9.45	69 33 34.65	— 10 39 55.40			52. Do. do.
53					54.0							
54	53.5	44.0			53.5	+ 2 37.27	1 9.31	69 33 46.10	10 40 6.85			54. Very faint.
55					51.5							
56						— 18.38	1 56.24	86 41 41.23				56, 57. Remarkably steady; corrected south limb for defective illumination 0″.19, three bisections of north limb, two of south limb.
57	57.6	59.6				+ 14.98	1 56.49	86 42 14.84	— 27 48 18.78			
58												
59					56.5							
60	57.5	52.7				+ 2 11.60	+ 0.89	20 52 14.52	+ 38 1 24.73	— 31.31		

DATE.	No. for ref.	OBJECT.	Wire obs'd.	Hour angle.	MICROSCOPES. A.	B.	C.	D.	E.	F.	Mean.	MIC.	Mic. Zero.	Barometer.
1850.			No.	m. s.	° ′ ″	″	″	″	″	″	″	Revs.	r.	In.
Oct. 31	1	Neptune	3	- - -	69 29 60.0	65.1	62.5	80.5	55.1	56.5	63.28	28.3868	31.0205	30.216
	2	Nadir	- -	- - -	199 59 59.93	64.56	60.70	80.27	54.63	56.50	62.765	31.0645	31.0205	
	†3	Victoria	3	- - -	52 39 60.8	64.3	61.1	80.8	55.2	57.5	63.28	32.6235		.228
	4	Flora	3	- - -	70 44 61.0	65.1	62.1	81.1	55.9	58.5	63.95	31.4133		.230
Nov. 1	†5	Venus, N. L.	3	- - -	86 44 72.8	78.2	74.2	94.4	69.5	70.9	76.67	33.4996		
	†6	Venus, S. L.	3	- - -	- - -	--	--	--	--	--	- -	32.9115	31.0344	30.200
	7	Neptune	3	- - -	69 29 60.3	66.9	63.0	81.1	56.9	59.1	64.55	28.2486		.235
	8	Nadir	- -	- - -	199 59 59.9	62.26	59.10	80.30	53.20	58.66	62.247	31.0702	31.0344	
2	†9	Neptune	3	- - -	69 34 60.1	64.1	61.0	79.2	55.0	57.9	62.88	32.8574	31.0222	30.250
	10	Nadir	- -	- - -	199 59 60.00	60.83	58.43	78.0	58.37	58.63	62.377	31.0600	31.0222	
4	†11	Neptune	3	- - -	69 34 60.5	64.2	60.1	79.6	54.5	58.2	62.85	32.5879	31.0302	.294
	12	Flora	3	- - -	70 29 60.0	62.8	58.0	77.8	52.9	57.8	61.55	34.0011		.298
	13	Nadir	- -	- - -	199 59 60.1	62.9	59.4	78.8	53.9	57.8	62.150	31.0644	31.0302	
	14		2	—10 1.0	330 24 60.8	63.8	62.8	80.9	55.1	59.1		32.212		
	15		2½	— 1 26.0								.126		
	16	Polaris	3	+ 3.0							63.84	.125		30.290
	17		3½	0 34.0								.124		
	18		4	+ 9 55.0	330 24 60.9	63.9	62.7	81.5	55.4	59.2		32.221		
5	†19	Neptune	3	- - -	69 34 60.2	66.2	61.2	83.5	55.0	58.9	64.15	32 5140		30.328
	20	Nadir	- -	- - -	199 59 60.0	64.3	60.9	81.2	53.6	58.4	63.067	31.0656	31.0168	
6	21	Nadir	- -	- - -	199 59 60.2	61.6	58.8	79.4	52.5	59.4	61.983	31.0558	31.0243	
	†22	Neptune	3	- - -	69 34 60.0	62.2	59.1	79.5	53.1	58.1	62.00	32.3758		30.162
	†23	α Piscis Australis	3	- - -	89 24 60.0	62.3	59.0	77.4	53.1	57.5	61.55	39.6893		
	24	α Pegasi	3	- - -	44 29 60.5	62.0	58.9	77.0	53.6	56.6	61.43	32.1180		30.166
	25	ι Piscium	3	- - -	54 4 60.0	62.2	58.3	77.1	53.3	56.1	61.17	32.1373		.162
	†26				70 54 60.9	62.6	60.1	79.9	54.1	58.5	62.68	35.7746		
7	†27	Neptune	3	- - -	69 34 59.9	65.1	61.2	82.5	53.4	59.0	63.52	32.3469	31.0298	.250
	28	Nadir	- -	- - -	199 59 60.2	64.4	60.9	82.5	53.1	58.9	63.333	31.0828		
	29	ι Piscium	3	- - -	54 4 59.5	63.9	59.1	80.2	52.1	56.7	61.92	32.1658		.250
8	30	δ Ursæ Minoris	3	- - -	344 4 63.5	67.5	64.8	85.9	57.2	62.1	67.18	27.9588	31.0123	.128
9	†31	Nadir	- -	- - -	199 59 60.1	64.0	60 2	82.7	52.7	59.3	63.225	31.0636		
	†32				60.0	64.3	60.0	83.1	52.8	59.5				
	33	α Lyræ	3	- - -	20 14 59.0	63.4	59.8	80.5	52.6	57.1	62.07	31.5622		.162
	†34	α Aquarii	3	- - -	59 54 60.0	65.1	61.8	82.9	54.3	59.1	63.87	30.8258	31.0187	.200
	†35	Neptune	3	- - -	69 34 60.0	65.4	62.1	84.6	54.5	58.7	64.22	32.2414		.204
	†36	Victoria	3	- - -	53 29 60.0	65 9	60.5	84.3	54.1	57.4	63.70	30.7240		.204
	37	Nadir	- -	- - -	199 59 60.0	67.4	62.2	86.9	54.0	57.8	64.717	31.0937	31.0187	
10	†38	Neptune	3	- - -	69 34 60.0	66.1	61.2	83.3	54.8	57.9	63.88	32.1838	31.0381	.264
	†39		1	—20 19.0	327 24 60.0	66.6	61.5	84.1	55.9	58.1		29.916		
	40		2	10 25.0								30.159		
		Polaris, S. P.									64.43			.160
	41		3	— 0 27.0								30.256		
	†42		4	+ 9 26.0	327 24 60.5	66.8	61.3	84.0	55.1	58.2		30.209		
	†43	Nadir	- -	- - -	199 59 60.7	66.7	61.5	85.4	54.0	60.0	64.717	31.1131	31.0381	
12	44	Mercury, N. L.	3	- - -	73 34 60.0	64.6	60.5	84.5	50.5	57.5	62.93	31.5277	31.0506	.039
13	†45	Venus, N. L.	3	- - -	86 39 60.3	64.5	62.9	81.5	52.8	58.5	63.42	31.9395		.020
	†46	Venus, S. L.	3	- - -	- - -	--	--	--	--	--	- -	31.2749		
	47	Nadir	- -	- - -	199 59 59.9	64.3	60.2	80.5	53.9	58.1	62.817	31.0954	31.0506	
	†48	Neptune	3	- - -	69 34 60.0	66.5	61.8	84.9	55.3	59.1	64.60	32.1380	31.0483	.034
	49	Weisse, XXIII-602	3	- - -	53 44 60.5	66.9	60.0	84.1	54.9	58.1	64.08	28.8582		
	50	Flora	3	- - -	69 34 60.0	67.0	62.5	85.5	55.9	58.9	64.97	32.6193		30.044
	51	Nadir	3	- - -	199 59 59.8	66.1	60.5	84.9	53.2	58.9	63.90	31.1103	31.0483	
14	†52	Venus, S. L.	3	- - -	86 34 60.2	63.8	61.9	83.5	54.9	59.0	63.88	29.7653	31.0627	.072
	†53	Venus, N. L.	3	- - -	- - -	--	--	--	--	--	- -	30.4197		
	†54	Neptune	3	- - -	69 34 60.0	66.2	61.5	83.5	55.8	59.4	64.40	32.1367		.062
	55	Nadir	- -	- - -	199 59 59.8	64.5	60.2	82.3	53.8	58.1	63.117	31.1123	31.0627	
	56	Weisse, XXIII-602	3	- - -	53 49 59.8	65.1	60.3	79.9	54.4	56.5	62.67	33.5843		.060
	†57	α Cassiopeae	3	- - -	3 9 60.0	65.2	61.3	81.3	55.0	58.1	63.65	30.4566		.066
	†58		1	— 19 19.0								27.718		
	59		2	— 9 27.0								.495		
	60	Polaris	3	+ 0 27.0	330 19 60.0	65.1	61.9	83.8	54.2	59.0	64.00	.410	31.0627	.060

	HERMOMETERS.				CORRECTIONS FOR—		Corrected Reading.	Observed Declination.	Reduct'n to 1850.0	Observer.	REMARKS.
	Ext.	St.	Up.	Low	Inst.	Object.					
	°	°	°	°	′ ″	′ ″	° ′ ″	° ′ ″	″		
)	49.5			56.0	+ 2 45.58	+ 1 8.53	69 33 57.39	− 10 40 18.14		B.	
				56.0							
5	49.0			56.0	− 1 40.78	33.99	52 38 56.40	+ 6 15 17.24			3. Very faint.
4	49.0			56.0	24.69	1 5.38	70 45 44.64	− 11 52 5.39			
					2 34.98	1 55.07	86 44 36.76				
								27 51 16.12			5, 6. Cor'n for def. ill. of S. limb 0″.18, three bisections of N. L., two of S. L.
9	64.2			61.5	− 1 58.01	1 55.31	86 45 13.97				
3	54.5			58.0	+ 2 55.13	1 7.90	69 34 7.58	10 40 28.33			
	58.5										
3	53.2			60.0	− 1 55.38	1 8.10	69 34 15.60	10 40 36.35			9. Remarkably steady.
				60.0							
1	56.1			62.0	1 37.93	1 7.82	69 34 32.74	10 40 53.49			11. Steady, but faint.
5	53.7			61.0	3 6.77	+ 1 4.29	70 27 59.07	11 34 19.82			
				61.0							
					1 8.88						
					8.69						
6	52.0			57.5	8.75	− 1 8.71	330 22 46.14	+ 88 30 53.11	− 18.31		
					8.68						
					1 9.93						
5	53.0			60.0	1 34.12	+ 1 8.32	69 34 38.35	− 10 40 59.10			19. Very steady, but faint.
				59.0							
				63.0							
5	57.1			62.0	1 24.97	1 7.40	69 34 44.43	10 41 5.18			22. Steady, but faint.
					9 4.75	2 31.43	89 18 28.23	− 30 24 48.98	8.28		23. Observed with mic. wire 4; cor. for reduction to wire 3 = —r.0.0128.
1	56.5			62.5	1 8.76	26.32	44 29 18.99	+ 14 24 20.26	22.21		
9	56.1				1 9.97	39.09	54 4 30.29	+ 4 49 8.96	18.45		
6				62.0	4 57.95	1 10.89	70 51 15.62	− 11 57 36.37	13.79		26. Supposed to be Flora; very faint.
7	46.6			56.5	1 22.81	1 9.04	49 34 49.75	− 10 41 10.50			27. Steady, but faint.
				55.0							
1	45.0				− 1 11.42	+ 40.49	54 4 30.59	+ 4 49 8.66	− 18.45		
6	51.1			55.0	+ 3 11.92	− 42.19	344 7 36.91	74 46 2.34	+ 4.56		
											31, 32. High wind; mercury unsteady.
				56.5							
8	54.2			57.0	− 34.57	+ 0.24	20 14 27.74	38 39 11.51	− 21.24		
5	43.0			51.5	+ 12.13	49.74	59 56 5.74	+ 1 2 26.49	17.93		34. Unsteady, and very misty.
0	41.9			51.5	− 1 16.87	1 9.63	69 34 56.98	− 10 41 17.73			35. Unsteady, and faint.
2	38.6			49.0	+ 18.53	36.21	53 30 58.48	+ 5 22 40.77			36. Do. do.
				48.5							
2	38.3			51.0	− 1 12.03	+ 1 10.26	69 35 2.11	− 10 41 22.86			38. Very misty.
											39 to 42. Mic. reading of vertical wire 4 rejected; star almost invisible.
8	42.0			50.5	+ 49.92	− 1 17.62	327 24 36.73	+ 88 30 57.42	20.74		
				51.0							43. Mercury very unsteady.
0	53.5			56.0	+ 32.87	+ 1 15.71	73 36 51.51	− 14 43 12.26			
0	56.8			56.0	− 55.88	1 52.35	86 40 59.89				
								27 47 41.62			45, 46. Cor'n for def. ill. of S. limb 0″.11, three bisections of N. L., two of S. L.
					14.10	1 52.53	86 41 41.85				
				56.0							
0	45.0			52.0	− 1 8.51	1 8.80	69 35 4.89	− 10 41 25.64			48. Well defined, but unsteady.
	42.8			50.0	+ 2 17.69	39.58	53 48 1.35	+ 5 5 37.90	18.78		
8	42.8			50.5	− 1 38.77	1 3.53	69 34 29.73	− 10 40 50.48			
				50.0							
5	57.5			56.5	+ 1 21.70	1 51.90	86 38 17.48	27 44 17.50			52, 53. Cor. for def. illum., 0″.10. Three bisections of N. L., two of S. L.
					+ 1 40.42	1 51.72	86 37 36.02				
1	45.1			53.5	− 1 7.52	1 8.83	69 35 5.71	− 10 41 26.40			54. Well defined and steady.
				51.0							
8	42.5			51.0	− 2 38.52	+ 39.64	53 48 3.79	+ 5 5 35.46	18.71		
3	41.8			52.0	+ 38.10	− 17.95	3 10 23.80	55 43 15.45	25.28		
					+ 3 49.43						57, 58. Very unsteady.
					49.06						
1	41.0			51.0	49.93	− 1 9.75	330 22 44.25	+ 88 30 55.00	− 21.85		

OBSERVATIONS

WITH

THE MERIDIAN CIRCLE,

1849.

NATIONAL OBSERVATORY.

OR. IN R. A.		COR. IN DECL.		Corrected Readings.	Mic. Zero.	OBSERVED.		REDUCTION TO 1850.0.		NADIR POINT.				
Inst.	Clock.	Inst.	Object.			R. A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean.
s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″					° ′
2.28	— 19.47					3 51 0.08	— 13 57	+ 2.09			Jan. 4			180 0
13.22	19.48					4 27 16.46	+ 16 12	2.47		39″7	40″0	34″9	40″0	38″65
1.51	19.49					5 5 33.87	45 50	2.84		40.1	39.9	34.8	39.8	38.65
1.68	19.50					5 17 46.38	+ 28 28	2.59		40.4	40.4	36.3	42.0	39.78
2.05	19.50					5 24 18.62	— 0 25	2.05		39.6	39.8	35.4	40.9	38.92
1.56	19.75					18 31 47.78	+ 38 39	3.84		40.4	41.9	35.0	40.7	39.50
2.09	20.37					2 54 23.93	3 29	2.64		39.8	40.3	35.0	39.8	38.72
1.43	20.38					3 13 35.46	49 19	2.86		41.4	42.0	36.3	41.7	40.35
1.91	20.38	—15 18.86	+52 7.00	334 44 46.49	40.137	3 18 42.42	13 38 25.74			40.20	40.61	35.39	40.70	39.23
1.74	20.39	— 38.93	— 16.72	344 44 23.05		3 38 31.97	23 38 2.30	2.67	+ 15.89					—0.01
1.88	20.39	+ 1 15.52	— 31.01	333 9 50.58		3 52 20.14	12 3 29.83	2.50	18.43					
1.47	20.41	— 32.79	+ 7.47	6 55 35.16		5 5 33.72	45 50 14.41	2.84	8.68		Mic.	39.000	—7	rdgs.
1.69	20.41	34.76	— 11.32	349 34 43.80		5 16 46.26	+ 28 28 23.06	2.58	+ 11.01					
2.79	20.42					5 34 12.33	— 34 10	0.84						
12.97	20.43					5 47 0.98	+ 7 22	2.16						
		58.23	+ 1 25.87	54 30 26.87										
		59.17	25.87	25.93										
2.74	20.44	59.02	25.87	26.08		6 20 43.75	+ 86 35 54.39	1.03	— 4.39					
		59.20	25.87	25.90										
		— 58.05	25.87	27.05										
2.34	20.44	+ 54.47	1 28.84	304 35 28.81		6 38 30.78	— 16 30 51.94	1.39	+ 7.00					° ′
2.62	20.45	+ 1 32.22	2 28.35	292 19 59.25		6 52 42.96	— 28 46 21.50	0.90	6.[illegible]7		Jan.	18.		179 59
2.01	23.43					2 35 29.15	+ 2 36	2.76		58.8	59.0	63.5	57.7	59″75
2.00	23.43					2 54 23.68	3 29	2.68		58.6	58.4	63.4	57.9	59.57
1.43	23.43					3 13 35.43	49 19	2.93						
7.72	23.43					3 38 31.83	+ 23 38	2.69		58.70	58.70	63.45	57.80	59.66
2.28	23.43					3 50 59.78	— 13 57	2.13						
1.83	23.43					4 27 16.51	+ 16 12	2.47			Mic.	39.396	—10	rdgs.
2.28	23.54					3 50 59.85	— 13 57	2.14						
1.83	23.54					4 27 16.60	-- 16 12	2.48						
1.47	23.55					5 5 34.47	+ 45 50	2.84						
1.69	23.55					5 16 46.43	+ 28 28	2.56						
12.98	23.55					5 24 18.63	— 0 25	2.01						
2.06	23.55					5 28 34.02	1 18	1.98						
9.41	23.55					5 34 12.29	— 34 10	0.86						
1.94	23.55					5 47 0.98	+ 7 22	2.13						
1.49	22.58					20 36 15.24	44 45	3.55						
2.01	22.61	+ 35.95	46.16	323 41 56.93	39.386	2 35 29.01	2 35 36.18	2.88	24.77					
7.49	22.61	+ 36.02	44.66	324 35 48.74		2 54 24.03	3 29 27.99	2.80	24.00					
1.43	22.61					3 13 35.29	49.19	3.12						
1.74	22.61	— 26.58	17.18	344 44 17.71		3 38 31.85	+ 23 37 56.96	2.81	15.97					
2.28	22.61	— 59.63	— 1 22.97	307 9 31.51		3 51 59.64	— 13 56 49.24	2.25	26.75					
1.83	22.61					4 27 16.26	+ 16 12	2.56						
1.69	22.61					5 16 46.01	+ 28 28	2.62						
2.05	22.61					5 24 18.51	— 0 25	2.06	+ 16.40					
7.54	22.61					5 28 33.78	— 1 18	2.03						
1.94	22.61					5 47 0.85	+ 7 22	2.16						
95.05	22.61					6 20 42.44	+ 86 36	0.22						
2.34	22.61					6 38 30.96	— 16 31	1.35						
1.87	23.46					17 27 54.50	+ 12 40	+ 3.87						
2.39	23.51													
2.39	— 23.51					20 23 58.29								

bject.	COR. IN R. A.	Observed Semi-diam.	
	Semi-diam.	Hor.	Vertical.
	m. s.	m. s.	′ ″
oon -	+ 1 10.18		
n - -	- - - - -	1 9.20	

5, 29 to 36, 38. Very unsteady.
7 to 15, 21 to 24, 43 to 47. Blurred and unsteady.
9. Observed for declination at 19m. 24s.
16 to 20. Observed for declination at 18m. 2s., 20m. 0s., 21m. 11s., 23m. 5s., and 24m. 14s.
51, 52. Rough and wavering.

DATE	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic. Wire	Mic. Revs.	Barometer.	THERM. At.	THERM. Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Revs.	In.	°	°
Feb. 15	†1	α Ursæ Majoris - -	45.0	9.3	32.8	57.0	20.9	44.5	8.4	10 54 56.84										
	†2	δ Hydræ et Crateris -	48.4	59.5	10.9	22.0	33.5	14.7	56.0	11 12 22.14										
	†3	β Leonis - - - - -	20.8	32.5	44.0	55.4	6.0	18.3	29.4	11 41 55.20										
	†4	β Corvi - - - - - -	26.4	38.3	50.3	2.2	14.1	26.0	37.9	12 27 2.17										
	†5	Polaris, S. P. - -	2.0	56.0	51.0	2.0	50.0	52.0	47.0	13 4 54.29										
16	†6	Polaris - - - - -	15.0	20.0	20.0	14.0	19.0	26.0	26.0	1 5 20.00										
	7	α Arietis - - - - -	37.4	49.3	1.2	12.9	24.8	37.0	48.6	1 59 13.03										
	†8	α Tauri - - - - - -	14.5	26.0	37.1	48.6	0.2	12.0	23.4	4 27 48.83	337 14 60.0	55.3	56.4	59.9	57.90	IV.	15.925	29.924	27.0	19.7
	9	α Canis Majoris - -	29.0	41.0	52.0	3.4	15.1	26.3	37.6	6 39 3.49	304 36 14.0	9.8	16.0	16.7	14.13		40.334	29.928	23.5	17.7
	10	ε Canis Majoris - -	38.2	50.5	3.2	15.4	28.0	40.4	53.0	6 53 15.53										
19	11	α Tauri - - - - - -	15.5	27.0	38.7	50.0	1.6	13.3	24.0	4 27 50.11										
	12	β Orionis - - - - -	18.5	29.7	40.8	51.5	3.0	14.0	25.0	5 7 51.79	312 42 10.0	7.2	9.4	10.9	9.38		43.277	30.588	29.9	21.9
	13	β Tauri - - - - - -	42.4	55.0	6.9	19.4	32.4	44.9	57.2	5 17 19.74	349 36 7.3	2.4	5.0	6.1	5.20		37.427	30.580	29.3	21.7
	14	δ Orionis - - - - -	19.4	30.5	41.6	52.3	3.5	14.4	25.4	5 24 52 44										
	15	α Leporis - - - - -			28.0	39.1	50.9	2.4	14.0	5 26 50.88										
	16	ε Orionis - - - - -	35.3	46.4	57.3	8.0	19.3	30.1	41.0	5 29 8.20										
	17	α Columbæ - - - - -	6.5	20.0	33.0	46.1	9.4	13.0	26.0	5 34 46.29										
	18	α Orionis - - - - -	1.6	12.9	23.8	34.6	45.9	57.0	8.0	5 47 34.83										
	†19	ε Leonis - - - - -	15.4	27.4	39.8	51.5	3.6	16.0	28.0	9 37 51.67	345 32 61.0	57.0	58.8	58.8	58.90		41.917	30.572	25.2	15.5
23	†20	Polaris - - - - -	54.0	56.0	55.0	48.5	59.0	57.5	59.0	1 4 55.57										
	21	η Tauri - - - - - -	28.5	41.0	52.9	4.4	16.3	28.4	40.4	3 39 4.56										
	22	γ^1 Eridani - - - - -				33.0	44.0	55.4	6.7	3 51 49.77										
	†23	α Tauri - - - - - -		26.5	38.0	49.5	0.7	12.4	23.5	4 27 55.10	337 18 5.2	0.0	3.5	5.2	3.48		40.502	30.404	39.5	35.2
	†24	β Orionis - - - - -			40.0	51.0	2.3	13.3	24.4	5 8 2.00										
	25	β Tauri - - - - - -	41.4	54.2	6.4	19.0	31.5	44.0	56.5	5 17 19.00	349 35 62.4	57.0	60.0	58.9	59.58		37.498	30.412	39.7	33.8
	26	δ Orionis - - - - -	18.9	30.0	40.5	51.4	2.7	13.3	24.5	5 24 51.61										
	27	ε Orionis - - - - -	34.6	45.5	56.3	7.1	18.0	29.3	40.3	5 29 7.30										
	28	α Columbæ - - - - -	6.1	19.2	32.4	45.1	58.4	12.2	25.4	5 34 45.54										
	29	α Ursæ Majoris - -		9.5	33.6	56.0	20.2	44.4	8.4	10 54 8.68										
	†30	δ Leonis - - - - -	3.5	16.0	27.2	39 0	50.1	2.5	14.4	11 6 38.96										
	31	δ Hydræ et Crateris -	49.2	0.5	11.8	22.9	34.2	45.5	56.9	11 12 23.00										
	32	Polaris, S. P. - -	14.0	4.0	11 0	12.0	6.0	4.0	1.0	13 5 7.43										
March 7	33	δ Orionis - - - - -	8.9	20.0	30.9	41.5	52.7	3.8	14.9	5 24 41.81										
	34	α Leporis - - - - -	54.0	5.5	17.0	28.2	40.0	51.1	3.2	5 26 28.43										
	35	α Columbæ - - - - -	55.5	9.0	22.1	35.0	48.4	1.9	15.1	5 34 35.29										
	36	δ Ursæ Minoris, S. P.	36.0	29.0	26.8	25.0	18.0	12.8	7.5	6 21 22.85										
	37	α Canis Majoris - -	20.0	31.3	43.0	54.1	5.2	17.1	28.5	6 38 54.17										
	38	ε Canis Majoris - -	28.7	41.1	54.0	6.1	19.0	31.3	44.0	6 53 6.31										
	39	Moon, 1st L. - -	36.3	48.4	59.4	10.7	21.3	33.4	45.0	10 34 10.64										
	40	δ Leonis - - - - -	37.9	49.2	0.0	10.4	21.9	33.1	44.0	10 53 10.93	325 27 4.4	5.7	6.8	8.2	6.28		48.754	30.028	45.4	40.7
	41	χ Leonis - - - - -				38.4	49.4	0.7	12.0	10 57 55.12										
	42	β Corvi - - - - - -	18.0	30.0	41.9	53.2	5.1	17.3	29.3	12 26 53.54										
	†43								51.0		52 32 66.9	57.9	58.7	61.3	61.20		41.514			39.4
	†44														61.49		41.671			
	†45							50.0							61.78		41.848	30.048	44.5	39.2
	†46														62.08		41.984			
	47						55.5				67.8	61.2	59.0	61.5	62.38		42.072			
	†48														62.50		42.112			
	†49	Polaris, S. P. -				2.0				13 5 54.93					62.62		42.145	30.048		39.3
	†50														62.74		42.097			
	51				54.5						69.0	61.3	59.0	62.1	62.85		42.023			
	†52														63.42		41.895	30.052	44.0	39.2

Date.	Clock.	Hourly rate.	Value of m.	Value of n.	Value of c.	Errors of run.	Mic. Coin. At	Mic. Coin.
h.	s.	s.	s.	s.	s.	″	h.	revs.
Feb. 16, 6	f 31.467	l 0.009	− 0.710	+ 0.140	− 0.480	− 0.74		
19, 5	33.867	g .015	− 0.149	+ 0.382	− 0.196			
23, 5	33.163	l .008				− 0.32		
March 7, 9	23.356	g .007						

1 rev. = 34″.515.

February 19. Adjusted in azimuth.

No. for ref.	COR. IN R. A.		COR. IN DEC.		Corrected Readings.	Mic Zero.	OBSERVED		REDUCTION TO 1850.0		NADIR POINT.				
	Inst.	Clock.	Inst.	Object.			R. A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	− 1.49	− 31.73					10 54 23.62	+ 62 34	+ 2.04						
2	1.24	31.73					11 12 49.17	− 13 58	1.49			Feb.	16, 4h.		
3	1.16	31.72					11 41 22.32	+ 15 25	4.93		60.4	58.3	60 3	59.0	59.50
4	− 1.29	31.72					12 26 29.16	− 22 34	1.70		60.7	58.1	60.2	58.4	59.35
5	+ 12.89	31.71					13 4 35.47	+ 88 30	26.33						
6	− 13.77	31.51					1 4 34.72	88 30	26.62		60.55	58.20	60.25	58.70	59.425
7	1.17	31.50					1 58 40.36	22 45	3.60						
8	1.17	31.48	+ 3 48.27	− 25.89	337 18 17.77	39.311	4 27 16.18	+ 16 11 57.02	2.94	+ 16.81		Mic.	39.327	−5	rdgs.
9	1.25	31.46	35.38	1 29.97	304 35 19.53		6 38 30.78	− 16 31 1.22	1.56	14.99					
10	1.33	31.46					6 52 42.74	− 28 47	1.09						
11	0.24	33.86					4 27 15.91	+ 16 12	2.98						
12	.40	33.87	+ 2 15.57	1 8.11	312 43 16.83	39.349	5 7 17.52	− 8 23 3.93	2.33	22.47		Feb.	19, 5h.		
13	.17	33.87	− 1 6.34	11.59	349 34 47.27		5 16 45.69	+ 28 28 26.52	3.00	+ 9.59	59.4	57.3	59.4	59.7	58.95
14	.34	33.87					5 24 18.23	− 0 25	2.40		60.4	57.1	59.8	58.2	58.88
15	11.97	33.87					5 26 5.04	17 56	2.00		60.4	57.7	59.8	58.9	59.20
16	0.34	33.87					5 28 33.99	0 18	2.36		60.07	57.37	59.66	58.93	59.01
17	.64	33.87					5 34 11.78	− 34 10	1.45						
18	.30	33.88					5 47 0.65	+ 7 22	2.45			Mic.	39.378	−10	rdgs.
19	− .18	33.97	+ 1 25.45	16.43	345 34 7.92		9 37 17.52	24 27 47.17	2.03	− 4.49					
20	+ 6.99	33.19					1 4 29.37	88 30	31.29						
21	− .20	33.17					3 38 31.19	+ 23 38	3.38						
22	17.35	33.17					3 50 59.25	− 13 57	2.81						
23	5.95	33.16	+ 38.17	25.45	337 18 16.20	39.396	4 27 15.99	+ 16 11 55.45	3.06	+ 16.92		Feb.	19, 9h.		
24	11.45	33.16					5 7 17.39	− 8 23	2.41		60.9	56.9	59.5	58.5	58.95
25	0.17	33.16	− 1 5.51	11.23	349 34 42.83		5 16 45.67	+ 28 28 22.08	3.08	+ 9.42	60.4	56.5	58.0	57.0	57.98
26	.34	33.16					5 24 18.11	− 0 25	2.47		60.65	56.70	58.75	57.75	58.465
27	.35	33.16					5 28 33.79	1 18	2.43						
28	.64	33.16					5 34 11.74	− 34 10	1.54			Mic.	39.486	−10	rdgs.
29	11.73	33.12					10 54 23.83	+ 62 34	1.87						
30	0.21	33.11					11 6 5.64	+ 21 21	1.85						
31	.45	33.11					11 12 49.44	− 13 58	1.39						
32	7.29	33.10					1 4 27.04	+ 88 30	31.60						
33	.34	23.33					5 24 18.14	− 0 25	2.68			Feb.	23, 5h.		
34	.48	23.33					5 26 4.62	17 56	2.31		60.9	58.5	60.6	60.0	60.00
35	.64	23.33					5 34 11.32	− 34 10	+ 1.83		62.8	58.5	60.7	59.5	60.38
36	3.28	23.34					6 20 56.23	+ 86 36	− 11.56		62.0	58.2	60.4	59.8	60.10
37	.47	23.34					6 38 30.36	− 16 31	+ 1.86		61.90	58.40	60.87	59.76	60.16
38	.58	23.34					6 52 42.39	− 28 47	1.43						
39	.30	23.37					10 34 52.51								
40	.32	23.37	+ 5 20.64	− 40.77	325 31 46.15	39.465	10 52 47.24	+ 4 25 25.40	1.61	− 7.31		Mic.	39.391	−10	rdgs.
41	16.86	23.37					10 57 14.89	+ 8 9	1.63						
42	0.52	23.37					12 26 29.65	− 22 34	1.34						
43			+ 1 33.12	+ 1 17.78	52 35 52.10										
44			1 31.12	1 17.80	50.41							Mar.	7, 11h.		
45			1 32.01	1 17.82	51.61						60.2	61.3	58.0	57.3	59.20
46			1 32.34	1 17.81	52.23						60.2	60.9	58.0	57.2	59.08
47			1 32.38	1 17.81	52.57						60.0	61.2	58.2	57.8	59.30
48			1 31.85	1 17.81	52.16										
49	− 7.29	− 23.38	1 32.51	1 17.81	52.94		13 5 24.26	+ 88 30 28.86	+ 37.11	+ 10.85	60.13	61.13	58.07	57.43	59.193
50			1 31.64	1 17.81	52.19							Mic.	39.488	−10	rdgs.
51			1 30.95	1 17.81	51.61										
52			+ 1 29.65	+ 1 17.83	50.90										

No.	Object.	COR. IN R. A.	Observed Semi-diam.	
		Semi-diam.	Hor.	Vert.
		m. s.	m. s.	′ ″
39	Moon - -	+ 1 5.54		

1 to 6, 19, 23, 24, 30. Unsteady. 23. Observed with full aperture.
43 to 52. Observed for declination at 43*m.* 51*s.*, 47*m.* 40*s.*, 50*m.* 58*s.*, 54*m.* 30*s.*, 57*m.* 56*s.*, 1*m.* 41*s.*, 5*m.* 2*s.*, 8*m.* 45*s.*, 12*m.* 0*s.*, 15*m.* 25*s.*
44, 45, 46, 48, 49, 50, 52. Circle readings interpolated.

20. Observed by Passed Midshipman MacRae.

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	*Rev.*	h. m. s.	° ′ ″	s.	″	″	″	″	″	° ′
1			+ 1 30.43	+ 1 17.84	52.26	39.465						Mar.	8,	5*h.*	179 39
2			1 29.25	1 17.85	51.67						59.3	61.3	58.3	57.5	59″10
3			1 28.86	+ 1 17.85	51.86						59.5	61.2	58.5	57.0	59.05
4	− 0.26	− 23.39	+ 50.48	− 21.44	340 15 35.32		13 47 30.74	+ 19 9 14.57	+ 1.76	− 8.86	59.4	61.0	58.8	57.0	59.05
5	.28	23.39					14 8 47.44	19 59	1.73						
6	.04	23.56	− 27.36	+ 7.18	6 56 36.57	39.451	5 5 32.91	45 50 15.82	3.92	+ 4.06	59.4	61.17	58.53	57.17	59.07
7	6.39	23.56	− 1 4.40	− 10.85	349 34 43.95		5 16 45.40	+ 28 28 23.20	3.34	9.44		Mic.	39.479,	—16	rdgs.
8	.34	23.57					5 24 18.08	− 0 26	2.71						
9	.48	23.57					5 26 4.65	17 56	2.34						
10	.35	23.57					5 28 33.52	1 18	2.66						
11	.64	23 57	+ 2 37.70	3 11.21	286 56 29.24		5 34 11.33	34 9 51.51	1.85	+ 27.39					
12	.45	24.37					11 11 49.32	− 13 58	1.30						
13	.34	24.37	+ 1 29.96	− 48.19	321 6 46.07	39.443	11 29 14.49	+ 0 0 25.32	1.54	− 9.02					
14	.33	24.38					11 42 51.19	2 38	1.62						
15	5.87	24.40					12 18 17.17								
16	.35	28.08													
17	− .35	28.08					23 56 22.37								
18			− 21.94	+ 1 9.00	49 36 41.21	39.463									
19			22.47	1 9.02	40.70										
20			22.68	1 9.03	40.49							Mar.	9,	11*h.*	
21			21.35	1 9.05	41.85						60.7	62.0	59.3	57.8	59.95
22			21.03	1 9.02	42.14						60.8	62.2	59.4	58.1	60.13
23	+ 6.99	28.11	21.56	1 8.99	41.58		1 4 20.02	88 30 20.23	40.98	+ 14.20	61.0	62.5	59.8	58.7	60.50
24			22.23	1 8.93	40.85										
25			22.60	1 8.93	40.48						60.83	62.23	59.50	58.20	60.19
26			22.76	1 8.91	40.30							Mic.	39.438,	—12	rdgs.
27			22.76	1 8.90	40.29										
28			22.15	1 8.90	40.90										
29	− .17	28.21					5 16 45.15	+ 28 28	3.56						
30	.34	28.21					5 24 17.78	− 0 25	2.90						
31	.48	28.21					5 26 4.38	17 56	2.56						
32	.35	28.22					5 29 33.43	− 1 18	2.86						
33	.30	28.23					5 47 0.18	+ 7 22	+ 2.94						
34			32.33	1 22.38	54 30 43.70										
35			33.21	1 22.38	42.82							Mar.	19,	7*h.*	
36			33.31	1 22.39	42.73						68.3	62.9	59.8	60.0	62.75
37			33.08	1 22.40	42.97						68.5	63.7	60.7	59.7	63.15
38			33.51	1 22.40	42.54						69.2	64.0	60.8	60.5	63.62
39			33.48	1 22.40	42.57										
40	1 4.85	28.24	33.58	1 22.41	42.48		6 21 0.88	+ 86 35 38.24	− 16.07	+ 12.57	68.67	63.53	60.43	60.06	63.17
41			33.44	1 22.42	42.63							Mic.	39.371,	—10	rdgs.
42			33.94	1 22.42	42.13										
43			34.01	1 22.41	42.05										
44			34.45	1 22.41	41.61										
45			33.93	1 23.42	42.14										
46			33.76	1 22.42	42.31										
47	− .47	28.26					6 38 30.04	− 16 31	+ 2.10						
48			1 16.33	1 17.93	52 36 0.77	39.418									
49			1 16.32	1 17.92	0.77										
50			1 16.92	1 17.91	0.16										
51			1 16.75	1 17.91	0.33										
52			− 1 15 99	+ 1 17.92	1.10										

No.	Object.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
15	Moon -	— 1 3.31		
16	Sun - -		1 4 23	

1, 2. Circle readings interpolated.
1, 2, 3. Observed for declination at 18*m.* 53*s.*, 22*m.* 26*s.*, and 25*m.* 29*s.*
11 to 15. Partially obscured by cloud.
18 to 28. Observed for declination at 43*m.* 47*s.*, 47*m.* 14*s.*, 50*m.* 50*s.*, 54*m.* 3*s.*, 58*m.* 4*s.*, 0*m.* 57*s.*, 8*m.* 36*s.*, 11*m.* 40*s.*, 15*m.* 31*s.*, 19*m.* 22*s.*, 22*m.* 18*s.*, 25*m.* 50*s.*
34 to 36. Observed for declination at 12*m.* 20*s.*, 13*m.* 57*s.*, 16*m.* 0*s.*, 17*m.* 5*s.*, 18*m.* 32*s.*, 20*m.* 8*s.*, 21*m.* 39*s.*, 23*m.* 17*s.*, 24*m.* 40*s.*, 26*m.* 30*s.*, 27*m.* 40*s.*, 29*m.* 19*s.*, 30*m* 46*s.*
48 to 52. Observed for declination at 50*m.* 54*s.*, 54*m.* 31*s.*, 57*m.* 58*s.*, 1*m.* 42*s.*, 5*m.* 14*s.*

COR. IN R. A.		COR. IN DEC.		Corrected Readings.	Mic. Zero.	OBSERVED		REDUCTION TO 1850.0		NADIR POINT.				
Inst.	Clock.	Inst.	Object.			R. A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean.
m. s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
− 3 37.64	− 28.53	− 1 15.61	+ 1 17.92	52 36 1.48	39.418	13 4 21.33	+ 88 30 19.97	+ 41.10	+ 14.35		Mar.	19,	12.h	
		1 15.94	1 17.92	1.15						65.4	60.4	56.4	55.8	59.50
		1 16.35	1 17.93	0.75						65.2	60.2	55.7	55.6	59.18
		1 16.23	1 17.93	0.87										
		1 16.58	1 17.93	0.53						65.30	60.30	56.05	55.70	59.34
		1 16.46	1 17.94	0.65							Mic.	39.437	—10	rdgs.
.00	28.54	1 50.99	+ 11.81	11 10 19.59		13 41 36.40	50 3 58.84	0.96	− 8.26					
.25	28.55	1 12.85	− 20.53	341 4 30.57		14 8 47.79	19 58 9.82	1.47	9.98					
.17	28.56	1 47.27	− 11.84	348 49 2.21		14 38 24.63	27 42 41.46	1.48	6.27					
5.85	29.39													
											Mar.	22,	6.5h	
− .37	29.39					0 7 17.07				61.2	55.7	54.2	53.0	56.03
		25.63	+ 1 9.43	49 36 36.82						61.8	55.7	54.0	52.9	56.10
		23.95	1 9.43	38.50										
		26.49	1 9.44	35.97						61.50	55.70	54.10	52.95	56.06
		26.23	1 9.44	36.23										
											Mic.	39.622	—10	rdgs.
+ 2 30.47	29.40	26.78	1 9.43	35.67	39.508	1 4 16.74	88 30 15.94	41.93	+ 15.16					
		26.22	1 9.42	36.22										
		24.54	1 9.40	37.88										
		26.15	+ 1 9.39	36.26										
											Mar.	24,	2.h	
− .21	29.44	− 7.14	− 14.37	341 59 39.81										
						2 51 11.01	+ 20 53 35.01			67.8	62.9	60.5	57.5	62.18
		+ 23.71	13.33	342 0 11.70						67.0	63.2	60.2	58.5	62.22
6.24	29.51					6 38 30.02	− 16 31	2.16						
.28	29.56	50.13	29.76	333 48 23.04		10 0 20.89	+ 12 42 2.29	1.87	− 5.63	67.40	63.05	60.35	58.00	62.20
− .25	29.59					11 41 22.57	15 25	1.60						
+ .15	29.60					11 45 53.51	54 33	1.46			Mic.	39.401	—10	rdgs.
+ 3 40.41	29.90					1 4 17.18	88 30	42.18						
− .36	30.38	+18 45.30	38.71	322 57 5.82	39.472		1 34 42.75							
− .36	30.38	−13 18.54	− 39.50	322 25 1.19		0 14 33.32								
											Mar	24,	10.5h	
		29.79	+ 1 7.95	49 36 39.38										
										62.5	67.0	55.7	53.5	57.18
		29.64	1 7.89	39.39						62.9	57.4	56.0	53.7	57.50
		29.68	1 7.83	39.29										
		28.86	1 7.78	40.06						62.70	57.20	55.85	53.60	57.34
		30.04	1 7.73	38.83										
		28.89	1 7.71	39.96							Mic.	39.583	—10	rdgs.
+ 10.14	30.40	30.69	1 7.70	38.15		1 4 19.03	88 30 18.84	42.36	+ 15.79					
		29.29	1 7.69	39.54										
		29.78	1 7.68	39.04										
		29.59	1 7.66	39.21										
		28.58	1 7.63	40.19										
		27.73	1 7.60	41.01										
		− 28.05	+ 1 7.57	40.66										
− .20	30.44	+ 51.18	− 13.26	342 36 44.19										
						2 57 15.74	21 30 39.76							
		+ 1 22.25	12.20	342 37 16.32										
.31	30.50					5 47 0.08	7 22	3.05						
.19	30.51	− 12.39	16.90	343 41 24.29	39.489	6 13 49.77	+ 22 35 3.54	3.27	7.30					
.52	30.52	+ 32.24	1 23.73	304 35 12.56		6 39 29.97	− 16 31 8.19	2.21	17.25					
− .66	30.52	+ 1 3.68	− 2 20.08	292 19 41.88		6 52 42.06	28 46 38.87	1.81	+ 19.97					
+ .05	30.56	− 59.29	+ 10.01	9 44 8.02	39.506	8 48 51.79	+ 48 37 47.27	2.95	− 11.94					
− .23	30.57	+ 3.14	− 21.70	339 2 42.16										
						9 2 23.08	+ 17 56 42.18							
.23	30.57	44.66	21.68	339 3 23.70										
.44	30.58	40.59	1 2.34	313 5 39.93		9 20 11.42	− 8 0 40.82	1.66	+ 1.50					
− .18	30.58	+ 1 31.26	− 15.02	345 34 15.21		9 37 17.25	+ 24 27 54.46	+ 2.19	− 7.39					

Object.	COR. IN R. A	Observed semi-diam.	
	Semi-diam.	Hor.	Vert.
	m. s.	m. s.	′ ″
Sun - -		1 4.44	
Venus -	+ 1.06		15.94
Sun - -		1 4.37	16 2.31
Venus -	+ 1.09		16.07
Jupiter -		1.45	20.77

1 to 6. Observed for Dec. at 8*m.* 31*s.*, 12*m.* 6*s.*, 15*m.* 23*s.*, 18*m.* 51*s.*, 22*m.* 20*s.*, 25*m.* 59*s.*

12 to 19. Unsteady. Observed for Dec. at 51*m.* 15*s.*, 54*m.* 12*s.*, 58*m.* 7*s.*, 2*m.* 0*s.*, 4*m.* 59*s.*, 7*m.* 58*s.*, 11*m.* 55*s.*, 15*m* 4*s.*

21. + 1″.03 applied for defective illumination.

29 to 41. Unsteady. Observed for Dec. at 43*m.* 40*s.*, 47*m.* 1*s.*, 50*m.* 53*s.*, 54*m.* 11*s.*, 57*m.* 50*s.*, 1*m.* 8*s.*, 4*m.* 35*s.*, 8*m.* 3*s.*, 11*m.* 44*s.*, 15*m.* 36*s.*, 18*m.* 50*s.*, 22*m.* 30*s.*, 25*m.* 46*s.*

43. + 1.″05 applied for defective illumination.

12 to 19. 26 observations by Passed Midshipman McRae.

COR. IN R. A.		COR. IN DEC.		Corrected Readings.	Mic. Zero.	OBSERVED		REDUCTION TO 1850.0		NADIR POINT.				
Inst.	Clock.	Inst.	Object.			R. A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean.
s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
.27	— 30.59	+ 47.19	— 28.76	333 48 21.58	39.506	10 0 20.88	+ 12 42 0.83	+ 1.89	— 5.80		Mar.	30,	8.5h.	
.20	33.68					6 13 49.76	+ 22 35 --	3.38		60.1	60.0	61.1	60.2	60.35
.52	33.69					6 38 29.95	— 16 32 --	2.32		59.2	59.4	60.5	59.4	59.62
.20	33.70					7 11 6.59	+ 22 15 --	3.06						
.11	33.70					7 24 58.02	32 13 --	3.23		59.65	59.70	60.80	59.80	59.99
.32	33.71					7 31 24.30	5 36 --	2.52						
.14	33.71					7 36 4.74	+ 28 23 --	3.04			Mic.	39.429	—15	rdgs.
.60	33.72					8 1 7.71	— 23 53 --	1.66						
.44	33.74	+ 38.00	1 1.55	313 5 38.66	39.429	9 20 11.03	— 8 0 42.10	1.72	+ 1.89					
.18	33.74	— 1 33.60	14.85	345 34 12.37		9 37 17.35	+ 24 27 51.62	2.26	— 7.96					
.30	33.77	+ 46.79	25.51	23 40 11.45	39.441	10 55 23.34	62 33 56.70	1.93	18.72					
.20	33.78	25.73	18.42	342 27 12.01		11 6 5.71	+ 21 20 51.86	1.79	10.75					
.49	33.78	+ 34.82	1 16.81	307 8 21.86		11 11 49.30	— 13 57 58.89	1.30	— 5.82		Mar.	30,	15.5h.	
5.83	34.00									59.1	58.0	60.0	59.2	59.08
.34	34 00					0 40 0.10				58.2	57.8	60.0	58.7	58.68
10.14	34.01					1 4 18.24	+ 88 30 --	42.66		58.0	57.8	59.5	59.0	58.57
.02	34.12					5 5 32.44	45 50 --	4.50						
.14	34.12					5 16 44.98	+ 28 28 --	3.81		58.43	57.87	59.83	58.97	58.77
.37	34.12					5 24 17.61	— 0 25 --	3.12						
6.29	34.13					5 26 4.13	17 56 --	2.79			Mic.	39.489	—10	rdgs.
.38	34.13					5 28 33.06	— 1 18 --	3.08						
.31	34.13					5 46 59.92	+ 7 22 --	3.16						
.19	34.14	— 22.71	16.48	343 41 24.16	39.398	6 13 49.73	22 35 3.41	3.39	+ 7.42		Mar.	31, 8h.		
.24	34.15					6 28 59.61	16 31 --	3.16		58.5	58.9	61.3	60.2	59.73
.26	34.15	+ 48.04	27.34	334 8 23.83		6 36 49.19	+ 13 2 3.08	3.03	8.85	59.4	59.7	61.1	59.0	59.80
13.13	34.16	58.81	2 16.32	292 19 43.27		6 52 41.83	— 28 46 36.48	1.96	20.21	59.4	59.5	61.1	60.0	60.00
.19	34.17	47.04	16.93	343 21 34.01		7 11 6.51	+ 22 15 13.26	3.07	2.90					
.55	34.17					7 25 41.02				59.10	59.37	61.17	59.73	59.84
.17	34.17	44.21	14.32	345 51 33.54		7 35 20.13	24 45 12.79	3.00	0.05					
5.99	34.21										Mic.	39.403	—10	rdgs.
14.62	34.21					9 1 24.89					Apr.	2, 8.5h.		
3.98	35.92									58.0	62.9	64.8	63.8	62.38
.33	35.92					0 47 16.59				58.3	63.2	64.5	63.1	62.27
6.18	36.03	49.94	10.95	344 57 43.77	39.423					58.7	62.5	63.8	63.4	62.10
		— 1 26.08	9.81	344 58 21.05		3 21 33.26	+ 23 51 41.66							
.52	36.16	+ 28.27	1 23.78	304 35 12.61		6 38 29.92	— 16 31 8.14	2.37	17.13	58.33	62.87	64.36	63.43	62.25
.65	36.16	+ 59.02	2 19.99	292 19 43.13		6 52 41.79	— 28 46 37.62	2.00	+ 20.09		Mic.	39.358	—10	rdgs.
.19	36.18					7 11 6.52	+ 22 15 --	3.12						
.11	36.18	— 1 52.28	6.81	353 19 5.13		7 24 58.02	32 12 44.38	3.29	— 1.96					
5.83	36.19	+ 1 4.92	38.15	326 42 34.44		7 31 24.43	5 36 13.74	2.59	+ 6.03		Apr.	2,14.5h		
12.57	36.19	2 32.97	10.79	349 29 22.71		7 36 4.68	+ 28 23 1.96	3.11	— 1.47	57.3	60.9	64.0	62.4	61.15
.60	36.21	25.89	1 53.01	297 13 38.01		8 1 7.63	— 23 52 42.74	1.74	+ 12.95	58.0	61.9	64.2	63.7	61.95
6.00	36.23	+ 58.33	21.61	339 48 31.19		8 36 6.85	+ 18 42 10.44	2.54	— 2.77					
.27	36.24	— 2.42	29.28	333 32 28.33		8 50 14.03	12 26 7.58	2.34	1.61	57.65	61.40	64.10	63.05	61.55
.23	36.25	+ 1 4.44	21.81	339 6 46.98		9 1 15.06	18 0 45.56							
.23	36.25	1 43.10	— 21.80	339 7 25.65							Mic.	39.399	—11	rdgs.
.13	36.26	+ 11.78	+ 8 39.43	334 23 25.31		9 31 37.26	13 17 4.56							
11.40	36.27	— 44.70	— 31.73	331 40 44.85		9 33 6.39	10 34 24.10	2.04	4.03					
.23	36.29	— 20.19	23.13	338 36 1.51		9 59 6.87	17 29 40.76	2.06	7.40					
5.83	38.71													
.32	38.71					0 58 12.25								
6.07	39.09	+ 29.52	— 18.60	342 27 15.37	39.701	11 6 5.56	+ 21 20 54.62	+ 18.3	— 11.39					

Object.	COR. IN R.A.	Observed semi-diam.	
	Semi-diam.	Hor.	Vert.
	m. s.	m s.	′ ″
un - - -		1 4.46	
oon - - -	+ 1 9.85		
upiter - -		1.44	
un - - -		1 4.46	
enus - -	1.27		18.64
upiter - -		1.45	19.34
oon - - -	+ 1 6.95		
un - - -		1 4.57	

6. Brightness varying.
7 to 10. Through clouds.
12, 35, 43. Unsteady.
35. + 1.″13 applied for defective illumination.
44. Transit observation not very good; made while persons were talking in the room.
47. Observed for dec. at 22m. 36s.
50, 51. High wind made it difficult to hear the clock beat.

COR. IN R. A.		COR. IN DEC.		Corrected Readings.	Mic. Zero.	OBSERVED		REDUCTION TO 1850.0		NADIR POINT.				
Inst.	Clock.	Inst.	Object.			R. A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean.
s.	s.	′ ″	′ ″	° ′ ″	Revs	h. m. s.	° ′ ″	s.	″					
10.57	— 20.91	+21 3.37	— 52.83	317 38 12.89	39.722	10 29 41.06	— 3 28 7.86	+ 1.93	— 4.47		May	4.	3.5h.	
.40	20.91	2 53.54	51.93	317 29 4.28		10 35 25.14	3 37 16.47	1.92	5.02	58″3	60″7	61″9	59″0	59″98
3.98	20.91	+ 2 58.55	46.92	320 23 14.61		10 46 52.46	0 43 6.14	1.91	6.60	58.3	60.8	61.9	59.4	60.10
5.83	20.91	— 2 54.98	47.09	320 17 20.91		10 48 25.08	— 0 48 59.84	1.89	6.66	58.5	60.8	61.9	59.5	60.17
.21	20.91					11 6 5.45	+ 21 21	2.09						
.30	20.91	+ 1 11.31	36.38	327 57 36.48		11 13 22.29	6 51 15.73	1.86	— 10.21	58.37	60.76	61.90	59.30	60.08
.97	20 91	2 17.92	+ 2 0.69	64 19 8.38		11 33 10.86	76 47 12.37	3.04	+ 31.60		Mic.	39.717	—10	rdgs.
11.34	20.9	+ 0 1.12	+16 43.4	324 19 14.74		11 43 6.12	3 12 53.99							
.34	20.91	— 40.87	— 46.63	321 16 33.25		12 12 12.44	0 10 12.50	1.52	— 10.83					
		59.71	+ 1 16.48	52 36 12.74										
		60.09	1 16.40	12.28										
		59.23	1 16.32	13.06										
		59.69	1 16.34	12.62							May	4.	10.5h.	
7.26	20.90	59.11	1 16.37	13.23		13 4 24.05	88 30 7.74	36.84	+ 27.75	56.0	60.1	60.1	57.4	58.40
		59.38	1 16.41	13.00						57.0	59.7	60.2	57.0	58.48
		58.73	1 16.45	13.69										
		57.95	1 16.48	14.50						56.50	59.90	60.15	57.20	58.44
		— 60.46	+ 1 16.48	11.99							Mic.	39.787	—10	rdgs.
6.14	20.90	+ 7 58.29	— 1 16.80	343 52 38.97		13 41 31.03	22 46 18.22	1.14	— 15.44					
17.98	20.90	+ 4 39.32	16.85	343 49 19.95		13 43 14.94	22 42 59.20	1.14	15.28					
12.21	20.90	— 12.18	15.52	345 2 34.15		13 54 30.03	23 56 13.40	1.13	15.21					
18.19	20.90	6 17.51	15.63	344 56 28.71		13 56 23.36	23 50 7.96	1.12	15.08					
6.21	20.90	33.38	— 15.52	345 2 12.95		13 59 2.57	23 55 52.20	1.11	— 15.05					
		42.17	+ 1 5.21	49 36 25.71							May	5.	3.5h	
		42.70	1 5.23	25.40						58.7	62.8	62.4	60.4	61.08
		42.44	1 5.25	25.88						59.0	63.0	62.9	60.6	61.37
		41.37	1 5.27	27.16						58.9	62.7	63.0	60.7	61.32
		40.75	1 5.29	28.00						58.87	62.83	62.77	60.57	61.26
8.40	20.87	41.85	1 5.32	27.12	39.719	1 4 23.53	88 30 5.55	36.26	+ 28.06					
		42.37	1 5.25	26.72							Mic.	39.677	—10	rdgs
		43.08	1 5.19	26.15										
		42.72	1 5.13	26.64										
		44.61	1 5.07	24.88										
		44.06	1 4.99	25.61										
.01	20.86					1 58 39.64	22 45	3.87						
.06	20.84													
5.76	20.84					2 46 26.23								
.06	20.81	+ 36.84	— 23.13	337 18 15.69	39.719	4 27 15.00	16 11 54.94	3.99	17.93					
11.58	20.80	— 31.15	+ 6.69	6.56 35.49		5 5 31.43	+ 45 50 14.74	5.07	+ 8.98					
5.77	20.80					5 7 16.41	— 8 23	3.50						
.41	20.69	+ 1 2.77	+ 24.45	23 40 22.47	39.742	10 54 22.59	+ 62 34 1.72	2.86	— 26.13					
17.64	20.69	+ 35.19	— 17.52	342 27 19.59		11 6 5.12	21 20 58.86	2.12	14.72					
.06	20.68	— 1 22.78	— 24.22	336 31 13.35		11 41 22.35	+ 15 24 52.60	1.81	— 14.09					
3.48	20.67					12 12 12.39	— 9 50	1.55						
		39.35	+ 1 4.74	49 36 27.19										
		39.80	1 4.69	27.34										
		41.54	1 4.64	26.21										
		43.06	1 4.59	25.29										
8.40	— 20.44	42.28	1 4.56	26.70		1 4 25.25	+ 88 30 5.74	+ 35.78	+ 28.31					
		42.45	1 4.52	26.43										
		41.89	1 4.48	26.88										
		42.59	1 4.45	26.08										
		— 42.23	+ 1 4.41	26.33										

)bject.	COR. IN R. A.	Observed Semi-diam.	
	Semi-diam.	Hor.	Vert.
	m. s.	m. s.	′ ″
oon .	+ 1 3.21		
ın . .		1 6.30	

8. Observed for dec. at 43*m.* 58*s.*

10 to 18. Observed for dec. at 50*m.* 51*s.*, 54*m.* 32*s.*, 58*m.* 0*s.*, 1*m.* 30*s.*, 5*m.* 2*s.*, 8*m.* 28*s.*, 11*m.* 58*s.*, 15*m.* 28*s.*, 18*m.* 54*s.*

24 to 34. Observed for dec. at 57*m.* 50*s.*, 1*m.* 28*s.*, 3*m.* 0*s.*, 3*m.* 39*s.*, 4*m.* 6*s*, 5*m.* 17*s.*, 6*m.* 18*s.*, 7*m.* 43*s.*, 9*m.* 10*s.*, 10*m.* 39*s.*, 12*m.* 19*s.*

24 to 38. Hazy.

45 to 53. Observed for dec. at 51*m* 4*s.*, 54*m.* 0*s.*, 57*m.* 55*s.*, 0*m.* 1*s.*, 4*m.* 54*s.*, 8*m.* 52*s.*, 11*m.* 37*s*,, 15*m.* 9*s.*, 18*m.* 42*s.*

25 to 33, 46 to 48, 50 to 52. Circle readings interpolated.

No. for ref.	COR. IN R.A. Inst.	COR. IN R.A. Clock.	COR. IN DECL. Inst	COR. IN DECL. Object.	Corrected Readings.	Mic. Zero.	OBSERVED. Right Ascen.	OBSERVED. Declination.	REDUCTION TO 1850.0. R. A.	REDUCTION TO 1850.0. DEC.	NADIR POINT. A.	NADIR POINT. B.	NADIR POINT. C.	NADIR POINT. D.	NADIR POINT. Mean.
	s.	s.	′ ″	′ ″	° ′ ″	*Revs.*	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	− .23	− 16.46					12 31 57.97	+ 55 42	+ 3.23			May	19,	15 5 *h*	
2			− 1 5.86	+ 1 15.08	52 36 11.87	39.753					1.4	2.5	3.0	2.7	2 40
3			1 5.91	1 15.08	11.87						0.5	2.6	3.9	2.8	2.45
4			1 5.87	1 15.08	11.82										
5			1 6.26	1 15.08	11.86						0.95	2.55	3.45	2.75	2.43
6			1 5.44	1 15.08	11.47										
7			1 4.97	1 15.08	12.29							Mic.	39.657	−8	rdgs.
8	− 8.34	16.46	1 6.00	1 15.06	12.76		13 4 30.41	88 30 9.14	29.26	+ 31.19					
9			1 6.44	1 15.04	11.69										
10			1 6.06	1 15.02	11.23							May	21,	4.5*h*	
11			1 6.49	1 15.01	11.60						59.2	62.4	63.0	61.5	61.53
12			1 6.99	1 15.00	11.16						60.0	62.7	63.5	62.5	62.17
13			1 7.01	1 14.99	10.65						60.1	62.9	63.8	60.4	61.80
14		16.46	− 1 7.26	1 14.98	10.62										
15	+ .22	16.45	+ 1 16.07	+ 11.39	11 10 28.71		13 41 36.74	50 4 7.96	0.75	− 23.54	59.73	62.67	63.436	61.47	61.83
16	− .04	16.45	+ 50.22	− 20.70	340 15 44.92		13 47 31.24	19 9 24.17	1.21	17.40		Mic.	39.636	−10	rdgs.
17	.03	16.45	− 1 10.24	− 19.81	341 4 35.25		14 8 48.25	19 58 14.50	1.05	18.02					
18	6.17	16.45					14 38 25.28	+ 27 43	0.85						
19	− .31	16.45					14 42 34.07	− 15 25	+ 1.13						
20	+ .81	16.45	+ 1 4.34	+ 41.84	35 52 48.23		14 51 15.23	+ 74 46 27.48	− 3.50	21.72		May	23,	4.5*h*	
21	− .24	16.45	+ .15	− 1 03.64	312 16 59.06		15 8 55.34	− 8 49 21.69	+ 1.12	12.02	58.4	61.9	62.1	59.3	60.42
22	+ .03	16.44	− 51.29	11.98	348 19 56.68		15 28 19.49	+ 27 13 35.93	0.66	13.75	58.9	61.4	61.6	60.3	60.55
23	− .12	16.44	+ 1 12.21	36.27	328 0 36.02		15 36 51.90	6 54 15.27	0.99	12.02	58.9	61.4	61.3	59.8	60.35
24	.04	16.43	+ 11.87	10.79	339 57 0.48	39.758									
25		16.43	− 45.15	11.03	339 56 3.22		2 58 38.01	+ 18 50 11.10			58.73	61.57	61.67	59.80	60.44
26	.05	16.38					6 38 29.37	− 16 30	3.10			Mic.	39.721	10	rdgs.
27	− .08	16.32	+ 56.05	− 27.56	333 48 28.69	39.715	10 0 20.06	12 42 7.94	2.61	9.87					
28	+ .40	16.30	+ 1 5.13	+ 24.81	23 40 25.97		10 54 21.97	62 34 5.22	3.38	27.85					
29	− 11.76	16.30	− 2 23.17	− 17.92	342 27 20.84		11 6 5.10	+ 21 21 0.09	2.32	16.23					
30	.28	16.30	+ 35.62	1 14.66	307 8 22.61		11 11 48.86	− 13 57 58.14	1.77	− 4.52					
31	3.85	16.12	− 16.94	11.56	339 11 33.62	39.689	2 55 8.60	+ 18 5 39.96							
32		16.12	+ 34.89	11.01	339 12 27.80										
33	.03	16.11	+15 30.65	15.60	341 37 58.20										
34	− .03	16.11	−16 6.34	16.13	341 6 20.68		3 53 11.01								
35	+ .17	16.10					5 5 31.76	45 50	5.12						
36	.00	16.10	− 6.34	11.46	346 20 44.85										
37		16.10	+ 0.34	11.42	346 20 51.57		5 12 54.93	+ 25 14 27.46							
38	− 4.09	16.08	+ 33.42	− 1 19.21	304 35 21.07		6 38 29.25	− 16 30 59.68	3.13	+ 12.74					
39			− 40.73	+ 1 4.41	49 36 24.98										
40			41.63	4.40	24.07										
41			41.76	4.38	23.92										
42			41.87	4.35	23.81										
43	+ 7 7.70	15.31	41.38	4.31	24.23	39.734	1 4 35.09	+ 88 30 3.23	25.42	+ 32.19					
44			42.12	4.30	23.48										
45			42.45	4.27	23.45										
46			41.63	+ 1 4.26	23.93										
47	− .02	15.31					1 58 40.10	22 45	3.53						
48	− .05	15.31	− 27.85	− 11.88											
49		15.31	+ 24.78	11.26			2 52 9.96	17 23 29.45							
50	+ 8.62	15.30					3 13 33.49	49 19	+ 4.74						
51	− .02	15.30	−15 5.76	15.48	341 29 40.69										
52	− 5.88	− 15.30	+16 34.41	− 14.99	342 1 21.35		4 1 13.02	+ 20 39 10.27							

No.	Object.	COR. IN R.A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vertical.
		m. s.	m. s.	′ ″
24	Venus -	− 1.99		28.63
31	Venus -	− 1.95		27.09
33	Sun - -		1 7.61	15 48.76
36	Mercury -	+ .22		3.36
48	Venus -	− 1.89		26.63
51	Sun - -		1 7.72	15 50.33

2 to 14. Faint but steady. Observed for dec. at 51*m.* 6*s.*, 53*m.* 15*s.*, 55*m.* 28*s.*, 58*m.* 5*s.*, 1*m.* 9*s.*, 3*m.* 24*s.*, 5*m.* 3*s.*, 7*m.* 31*s.*, 9*m.* 40*s.*, 12*m.* 2*s.*, 14*m.* 27*s.*, 16*m.* 31*s.*, 18*m.* 53*s.*

16, 19. Very faint.

18, 22, 26, 37, 48. Unsteady.

25, 31, 48. Applied for defective illumination of S. L. — 0.″22, — 0.″53, — 0.″61 respectively.

37. Applied + 0.″04 for def. illumination of N. L.

39 to 46. Observed for dec. at 51*m.* 20*s.*, 54*m.* 15*s.*, 57*m.* 55*s.*, 1*m.* 14*s.*, 4*m.* 49*s.*, 8*m.* 4*s.*, 16*m.* 36*s.*, 19*m.* 6*s.*

No. for ref.	COR. IN R.A. Inst.	COR. IN R.A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. zero	OBSERVED. R. A.	OBSERVED. DEC.	REDUCTION TO 1850.0. R. A.	REDUCTION TO 1850.0. DEC.	NADIR POINT. A.	NADIR POINT. B.	NADIR POINT. C.	NADIR POINT. D.	NADIR POINT. Mean.
	s.	s.	′ ″	′ ″	° ′ ″	″	h. m. s.	° ′ ″	s.	″					
1	+ .16	— 15.29	— 41.72	+ 5.23	6 56 28.38	39.734	5 5 31.91	+ 45 50 7.63	+ 5.09	+ 11.75		June	18.	17h. 7	
2	+ .01	15.29	+ 52.91	— 10.98	346 36 43.46	}	5 27 17.71	+ 25 30 28.84			58″2	58″8	48″4	70″4	58″95
3		15.29	59.12	10.94	346 36 49.71						57.7	58.7	49 0	71.4	59.20
4	— .30	15.28	+ 35.25	1 17.88	104 35 17.02		6 38 29.12	— 16 31 3.73	3.13	+ 12.49	57.4	58.8	50.0	72.7	59.72
5	.30	15.30					12 26 29.51	— 22 34	1.36						
6	.03	15.29	— 1 8.84	19.09	341 4 37.22	39.749	14 8 48.07	+ 19 58 16.47	1.07	— 19.10	57.77	58.77	49.13	71.50	59 29
7	.13	15.28	+ 1 16.78	— 35.00	328 0 38.51		15 37 52.02	6 54 17.76	0.95	12.81					
8	52.67	15.27	9.51	+ 45.98	39 21 46.59		15 49 37.64	+ 78 15 25.84	— 6.75	17.44		Mic.	39.495	—10	rdgs.
9	.32	15.27					15 57 1.07	— 19 23	+ 1.11						
10	12.57	15.24					16 20 11.55	26 55	1.16	11.16					
11	.25	15.24	+ 45.96	— 1 05.83	310 [illegible] 43.98		16 41 31.17	10 30 36.70	1.12	— 10.36					
12	.26	7.34					12 26 29.46	22 34	1.45						
13	.17	7.34					12 34 1.99	— 0 37	1.13						
14	7.51	7.31					13 4 42.85	+ 88 30	20.03						
15	.41	7.31					13 5 59.66								
16	.25	7.30					13 17 16.01	— 10 22	1.38						
17	— .03	7.26					14 8 48.00	+ 19 59	1.10						
18	+ .02	7.20					15 28 19.45	27 14	0.63						
19	— .12	7.20					15 36 51.92	6 54	0.92						
20	1 19.55	7.19					15 49 37.94	+ 78 16	— 6.60						
21	.20	7.18					16 6 28.13	— 3 18	+ 0.96						
22	.42	0.78					16 20 54.89	16 26							
23	6.00	-- --					16 41 31	— 10 31	0.99						
24	24.31	0.82					10 54 21.67	+ 62 34	4.00						
25	.34	0.82					11 6 4.93	21 21	2.52						
26	.42	0.82					11 11 48.56	— 13 58	1.97						
27	.35	0.82					11 41 22.16	+ 15 25	2.17						
28	.44	0.82					11 45 52.27	+ 54 32	2.75						
29	— .46	0.82					12 26 29.35	— 22 34	1.50						
30	+ 8.23	— 0.82					13 4 44.62	+ 88 30	16.08						
31	— 18.74	+ 1.75					12 26 29.31	— 22 34	1.55						
32	+ 6.94	1.76					13 4 48.99	+ 88 30	11.74						
33	— .84	1.78					14 8 48.00	19 58	1.26						
34	.84	1.79					14 38 25.25	+ 27 43	0.93						
35	.91	1.79					14 42 34.10	— 15 25	+ 1.12						
36	1.32	1.80					14 51 14.77	+ 74 46	— 2.60						
37	.89	1 80					15 8 55.32	— 8 49	+ 1.05						
38	9.31	3.39					3 13 34.21	+ 49 19	4.14						
39	.84	3.41					4 27 15.36	16 11	3.65						
40	.89	5.21					3 13 34.28	49 19	4.05						
41	.84	5.23					4 27 15.40	16 12	3.62						
42	.88	5.25					5 5 32.13	+ 45 50	4.79						
43	6.82	5.26 }					5 48 2.79								
44	6.82	5.26													
45	23.77	5.28					6 38 28.98	— 16 31	3.17						
46	— .94	5.25					12 26 29.21	— 22 34	1.66						
47			— 52.94	+ 1 12.95	52 36 20.53	}									
48	+ 6.94	5.25	53.49	12.95	19.98	39.475	13 4 55.53	+ 88 30 0.32	6.02	+ 35.03					
49			52.96	12.95	20.51										
50			52.75	12.95	20.72										
51	— .84	5.25	— 1 2.70	— 19.3	341 4 39.80		14 8 47.98	19 58 19.05	1.24	— 22.95					
52	— 7.01	+ 5.2	+ 1 22.57	— 11.1	348 49 16.46		14 38 25.13	+ 27 42 55.71	+ 1.01	— 23.16					

No.	Object.	COR. IN R A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vertical.
		m. s	m. s.	′ ″
2	Mercury -	+ 0.23		3.12
15	Moon - -	+ 1 2.25		
22	Moon - -	+ 1 3.49		
43	Sun - -	- - - - - -	1 8.90	

3. + 0″.04 applied for def. illum'n of N. L.
4. Large; twinkling.
17. Observed with full aperture; too bright.
47 to 50. Observed for dec., with circle unclamped, at 1*m.* 19*s.*, 3*m.* 42*s.*, 5*m* 30*s* 6*m* 59*s.*

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED. R. A.	OBSERVED. DEC.	REDUCTION TO 1850.0 R A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	NADIR POINT. B.	NADIR POINT. C.	NADIR POINT. D.	NADIR POINT. Mean.
	s	s.	′ ″	′ ″	° ′ ″		h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	− 6.81	+ 5.27					18 4 46.49	− 21 5	+ 0.99						
2	6.83	5.80					6 0 31.71								
3	.84	5.80													
4	.85	5.82					7 31 23.38	+ 5 36	3.40						
5	17.71	6.32					3 13 34.51	49 19	3.91						
6	.84	6.35					4 27 15.55	16 12	3.51						
7	.88	6.35					5 5 32.08	+ 45 50.	4.69						
8	.84	6.37					6 4 41.55								
9	.84	6.37													
10	.91	6.38					6 38 28.93	− 16 31	3.14						
11	22.87	6.39					7 31 23.39	+ 5 36	3.39						
12	.85	6.67					10 0 19.99	12 42	2.96						
13	19.41	6.73					14 38 24.85	+ 27 43	1.03						
14	.91	6.73					14 42 33.98	− 15 25	1.17						
15	.93	6.78					18 4 46.75	− 21 5	0.92						
16	− .84	8.94					13 47 31.00	+ 19 9	1.57						
17	+ 4.98	8.94					14 8 47.89	19 58	1.37						
18	5.34	8.95					14 38 25.09	+ 27 43	1.13						
19	4.77	8.95					14 42 33.94	− 15 25	1.25						
20	4.64	8.96					14 52 56.33	7 55	1.21						
21	4.65	8.96					15 8 55.08	8 49	1.15						
22	+ 4.81	8.96					15 15 22.64	− 13 0							
23	− .84	9.75					15 28 19.38	+ 27 14	0.78						
24	.85	9.75					15 36 51.91	6 54	+ 0.97						
25	1.52	9.76					15 49 36.64	+ 78 16	− 4.83						
26	6.73	9.76					16 3 15.81	− 19 4	+ 1.00						
27	6.37	9.76					16 6 28.39	3 18	0.92						
28	6.76	9.76					16 15 18.72	19 41	0.97						
29	.96	9.77					16 20 11.98	26 5	0.97						
30	.94	9.77					16 55 0.63	17 37							
31	.91	9.78					17 1 45.70	− 15 32	0.85						
32	.84	9.78					17 7 48.05	+ 14 34	0.49						
33	.95	9.78					17 12 47.06	− 24 51	0.90						
34	.46							16 31	2.97						
35	.46							− 16 31	2.95						
36	.61	17.21					5 5 32.91	+ 45 50	4.04						
37	6.00	17.21					5 7 16.99	− 8 23	2.85						
38	.45	17.22					5 47 0.04	+ 7 22	3.16						
39	− .46	17.23					6 38 29.27	− 16 31	+ 2.92						
40	+ 12.42	17.30					13 5 16.46	+ 88 30	− 16.80						
41	− .64	17.31					13 41 35.58	50 4	+ 1.95						
42	.46	17.32					14 8 47.69	19 58	1.58						
43	.61	17.46					5 5 32.88	+ 45 50	4.01						
44	.45	17.46					5 7 16.98	− 8 23	2.82						
45	.45	17.47					5 47 0.01	+ 7 23	3.13						
46	.46	17.44					15 56 42.04	− 19 23	1.11						
47	.45	17.44					16 6 28.29	− 3 18	1.00						
48	6.11	17.45					17 7 48.07	+ 14 34	0.53						
49	.45	17.56					6 38 29.2[illegible]	− 16 31	2.89						
50	− 6.03	17.62					13 17 15.79	− 10 22	1.85						
51	+ 12.43	17.62					13 5 18.22	+ 88 30	− 18.48						
52	− 9.19	17.63					13 41 35.46	+ 50 4	+ 1.99						

No.	Object.	COR. IN R.A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
2	Sun - -		1 8.92	
8	Sun - -		1 8.91	
22	Moon -	+ 1 2.77		
20	Moon -	+ 1 3.90		

46, 47. Observed by Professor Coffin.

No. for ref.	COR. IN R.A. Inst.	COR. IN R.A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED. R. A.	OBSERVED. DEC.	REDUCTION TO 1850.0. R. A.	REDUCTION TO 1850.0. DEC.	NADIR POINT. A.	NADIR POINT. B.	NADIR POINT. C.	NADIR POINT. D.	NADIR POINT. Mean.
	s.	s.	′ ″	′ ″	° ′ ″	*Revs.*	h. m. s.	° ′ ″	s.	″					
1	— 0.46	+ 17.63					14 8 47.67	+ 19 58	+ 1.60			July	18, 6*h*.		
2	.45	+ 18.01					5 47 0.06	+ 7 22	3.08		61″0	60″4	60″0	58″4	59″95
3	.47	18.02	— 2 9.47	— 1 19.45	304 35 28.33	39.658	6 38 29.45	— 16 30 52.42	2.87	+ 1.17	58.2	60.0	60.2	61.5	59.98
4	.48	18.03	+13 33.05	15.54	342 10 23.11		7 55 28.04	+ 20 48 18.50			58.2	60.0	59.7	61.6	59.87
5	.48	18.03	—17 54.17	— 16.04	341 38 55.39										
6	.45	18.06					10 0 19.80	12 42	3.10		59.13	60.1[illegible]	59.97	60.50	59.93
7	32.06	21.02					5 5 33.16	+ 45 50	3.81						
8	6.00	21.02					5 7 17.12	— 8 23	2.68			Mic.	39.660	—10	rdgs.
9	.50	21.02					5 16 45.46	+ 28 28	3.28						
10	.45	21.03					5 24 17.94	— 0 25	2.82			July	24,	15.3*h*	
11	.45	21.03					5 28 33.34	— 1 18	2.82		60.5	62.0	63.4	65.0	62.72
12	.45	21.03					5 47 0.04	+ 7 22	3.00		58.5	63.7	63.8	62.8	62.20
13	.46	21.04					6 38 29.57	— 16 31	2.81		58.5	63.0	62.4	62.8	62.43
14	.48	21.05					6 46 16.95								
15	16.97	21.06					7 31 23.69	+ 5 36	+ 3.16		59.17	62.90	63.20	63.53	62.20
16			51.96	+ 1 12.15	52 36 18.75										
17			52.09	12.15	18.62							Mic.	39.558	—10	rdgs.
18			52.41	12.14	18.29										
19			52.78	12.12	17.90										
20	5 2.43	21.29	51.64	12.12	19.04	39.622	13 5 26.61	88 30 2.45	— 22.77	+ 32.64					
21			52.63	12.14	18.07										
22			52.80	12.14	17.90										
23			52.18	12.16	18.44										
24			53.04	1 12.15	17.67										
25	.64	21.30	1 29.65	+ 10.94	11 10 41.79		13 41 35.20	50 4 21.04	+ 2.13	— 32.06					
26	42.16	21.31					14 51 12.47	74 47	0.24						
27	.50	21.32	— 43.78	— 11.53	348 20 8.04		15 28 19.19	27 13 47.29	1.06	26.11					
28	.45	21.32	+ 1 20.78	— 34.90	328 0 44.46		15 36 51.68	6 54 23.71	1.17	20.07					
29	1.67	21.33	19.76	+ 45.86	39 22 5.27		15 49 34.19	+ 78 15 44.52	— 2.88	31.59					
30	.45	21.33	+ 1 11.19	— 50.71	317 48 21.80		16 6 28.24	— 3 17 58.99	+ 1.07	16.34					
31	— .49	21.34	— 4.44	— 1 59.34	295 0 50.72		16 20 11.95	26 5 30.03	1.12	— 9.28					
32	+ 4.99	25.39					5 28 33.45	— 1 18	2.67						
33	+ 5.04	25.39					5 47 0.25	+ 7 22	2.86						
34	— .52	25.42					6 38 29.70	— 16 31	+ 2.70						
35	+ 9 41.49	25.57					13 5 26.60	+ 88 30	— 27.70						
36	—14 3.60	25.57													
37	+ 2 2.60	25.64					17 1 39.71	+ 82 17	— 8.89						
38	— 3 57.20	25.64													
39	— .49	26.43					6 38	— 16 31	+ 2.65						
40	+ 9 58.88	27.51					13 5 37.46	+ 88 30	— 29.22						
41	—13 47.77	27.51													
42	.49	-- --					6 38	— 16 31	+ 2.54						
43	.49	29 78					6 38 29.85	— 16 31	2.42						
44	— .51	29.79					7 36 4.37	+ 28 23	3.40						
45	+10 39.88	30.13					13 5 40.00	88 30	39.35						
46	—14 29.98	30.13													
47	.49	30.20					17 27 57.54	+ 12 40	0.77						
48	— .51	30.21					18 4 46.57	— 21 5	+ 0.96						
49	+ 1 30.35	30.21					18 21 9.72	+ 86 36	— 25.70						
50	— 6 15.13	30.21													
51	.48	30.42					7 31 23.97	5 36	+ 2.76						
52	— 4.71	35.37					18 21 9.20	+ 86 36	— 24.03						

No.	Object.	COR. IN R.A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
4	Sun - -	- - - - -	1 7.60	15 43.86
14	Mercury -	— .26		

3, 13. Unsteady.

16 to 24. At wires VII, V, III, clouded. Observed for dec. at 51m. 0s., 54m. 35s, 0m. 28s., 2m. 38s., 4m. 18s., 6m. 15s., 8m. 25s., 10m. 22s., 18m. 59s.

DATE.	No. for ref.	OBJECTS OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII	Mean	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic. Wire	Mic. Rev.	Barometer.	THERM. At.	THERM. Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Rev.	In.	°	°
Aug. 21	1	51 Cephei, (Hev.) S. P.	--	--	--	16.0	--	--	--	18 27 16.00										
	2	β Lyræ - - - -	18.5	31.4	44.4	58.0	11.0	23.9	37.2	18 43 57.77										
	3	ζ Aquilæ - - - -	22.0	33.2	44.5	55.7	7.2	18.5	29.2	18 57 55.76										
	†4	δ Aquilæ - - - -	47.5	58.7	9.2	20.4	31.4	42.4		19 17 14.93										
	5	γ Aquilæ - - - -	58.7	10.4	21.1	32.4	43.2	54.9		19 38 26.78										
	6	α Aquilæ - - - -		30.4	41.0	52.0	3.7	14.7		29.42 52.36										
	7	λ Ursæ Minoris - -	39.0	58.5	2.0	23.0				20 0 30.62										
	8	λ Ursæ Minoris - -	12.0	52.0						20 36 32.00										
24	9	γ Draconis - - -	37.7	55.8	13.4	31.0	48.8	6.2	23.8	17 52 30.96										
	10	β Lyræ - - - -			42.4	55.5	8.8	21.8	35.0	18 43 8.70										
	11	δ Aquilæ - - - -					29.7	40.6	51.4	19 17 40.57										
	12	γ Aquilæ - - - -	56.8	8.1	19.1	30.2	41.4	52.4	3.4	19 38 30.20										
	13	α Aquilæ - - - -	17.4	28.4	39.7	50.5	1.5	12.9	24.0	19 42 50.63										
	14	$α^2$ Capricorni - - -	32.4	43.7	55.0	6.1	17.8	28.8	40.0	20 9 6.26										
	15	λ Ursæ Minoris - -	34.0	57.0	5.0	18.0	32.0	42.0	0.0	20 14 18.29										
	16	α Canis Minoris - -	14.3	25.4	36.4	47.3	58.3	9.4	20.1	7 30 47.31										
	17	β Geminorum - -	50.4	2.5	15.4	27.5	39 9	52.7	5.1	7 35 27.64										
25	18	Sun, 1st L. - - -	57.7	9.0	20.2	30.9	42.4	53.7	5.0	10 15 31.27										
	19	Sun, 2d L. - - -	7.2	18.1	29.8	40.9	52.0	3.1	14.4	10 17 40.79										
	20	Mercury, 1st L. -	3.9	15.0	26.2	37.5	48.4	59.7	10.5	10 51 37.34										
	†21	Polaris, S. P. -							57.0		52 32 61.4	58.6	64.5	62.8	61.82	IV.	42.698	30.158	80.0	83.5
	22							61.0									43.000			
	23						56.0										43.047	30.156	80.0	83.8
	24					56.0				13 4 57.57							43.038	30.154	80.2	83.8
	25				57.0												42.964			
	†26		61.0	55.0													42.670	30.152	80.3	83.8
	27	α Virginis - - -	5.0	16.2	27.2	38.2	49.4	0.4	11.9	13 16 38.33										
	28	ε Ursæ Minoris - -	55.2	18.0	39.3	0.2	22.2	43.8	5.3	17 1 0.57	43 24 3.6	0.7	3.2	6.7	3.55	IV.	36.939	30.142	79.4	76.4
	29	δ Aquilæ - - - -	45.7	56.8	7.5	18.5	29.5	40.6	51.5	19 17 18.69	323 54 16.2	21.8	24.3	26.4	22.17		43.361	30.164	77.0	70.5
	30	γ Aquilæ - - - -	56.8	8.0	18.9	30.2	41.4	52.5	3.9	19 38 30.24	331.20 50.5	54.9	54.0	59.0	54.60		41.942	30.164	76.7	70.3
	31	α Aquilæ - - - -			39.4	50.4	1.7	12.5	23.9	19 43 1.58	329 32 49.5	55.0	54.4	58.8	54.43		44.587			
	32	β Aquilæ - - - -	46.2	57.4	8.4	19.4	30.2	41.1	52.3	19 47 19.29										
	33	$α^2$ Capriconi - - -	32.3	43.4	54.8	6.0	17.5	28.8	39.9	20 9 6.10										
26	34	$α^2$ Geminorum - -	42.0	55.1	8.1	21.1	34.0	47.0	60.0	7 24 21.04										
	35	α Canis Minoris - -	14.2	25.0	36.4	47.4	58.4	9.4	20.3	7 30 47.30	326 41 59.4	63.2	64.8	68.8	64.05		41.994			75.4
	36	β Geminorum - -					40.0	52.7	5.0	7 35 52.57	349 29 57.0	58.4	60.4	62.8	59.65		38.900	30.241	76.0	75.7
27	37	Sun, 1st & N. L. -	17.7	28.4	39.9	50.8	2.4	13.7	24.8	10 22 51.10	331 2 59.2	62.5	64.0	68.4	63.52	VI.	43.920			81.5
	38	Sun, 2d & S. L. -	26.8	37.9	49.0	59.9	11.3	22.8	33.4	10 24 60.16						II.	39.485	30.228	79.5	83.0
	39	α Ursæ Majoris - -	31.4	55.3	19.3	43.2		30.9	54.4	10 53 39.08	23 38 60.0	55.0	60.8	61.8	59.40	IV.	41.025	30.224	80.2	
	†40	Mercury, 1st & S. L.			37.3	48.4	59.4	0.7	21.6	11 4 59.48	328 18 13.0	19.9	19.7	21.8	18.60		36.795	30.218	80.5	86.3
	†41	Mercury, N. L. -															36.980			
	42	β Leonis - - - -					55.5	7.2	18.4	11 41 7.03										
	†43	γ Ursæ Majoris - -	16.7	35.8	54.7	13.3	32.3	51.2	10.4	11 45 13.49										
	44	δ Ophiuchi - - -	17.4	28.4	39.5	50.5	1.6	12.6	23.5	16 5 50.50	317 47 59.5	65.3	61.8	68.2	63.70		41.804			
	45	α Scorpii - - - -	57.4	9.9	22.0	34.3	46.4	58.6	10.8	16 19 34.20	295 2 63.4	64.8	69.5	72.8	67.62		39.194	30.166	79.8	79.4
	46	ε Ursæ Minoris - -	54.8	17.0	38.7	0.0	21.9	43.2	4.5	17 1 0.01	43 20 57.9	55.4	58.2	60.5	58.20		42.357	30.176	79.5	77.4
	47	α Herculis - - -	36.4	47.4	59.1	10.4	21.8	33.0	44.4	17 7 10.36	335 40 37.2	43.3	42.8	45.6	42.24	d.	40.278	30.170	79.4	76.4
	†48	α Ophiuchi - - -	46.5	57.8	9.1	20.3	31.5	42.8	54.0	17 27 20.29	333 47 57.2	65.8	65.1	71.0	64.78		38.730	30.170	79.2	76.2
	49	58 Ophiuchi - - -	12.8	24.7	36.3	48.2	0.2	12.0	23.5	17 33 48.24	299 32 58.0	61.8	66.4	69.8	64.00		37.532	30.174	79.2	76.4
	50	γ Draconis - - -	37.7	55.3	13.2	30.6	48.4	6.0	23.6	17 52 30.69	12 35 55.7	53.8	59.4	62.8	57.93		41.630	30.176	79.0	75.5
	51	Moon, 1st L. - -	37.6	49.4	1.3	13.3	25.2	37.2	48.7	17 58 13.24										
	52	$μ^1$ Sagittarii - - -	34.3	46.0	57.7	9.4	21.4	33.0	44.6	18 4 9.49	299 59 56.1	60.8	63.0	64.8	61.18		44.085	30.182	78.5	74.7

Date.	Clock.	Hourly Rate.	Value of m.	Value of n.	Value of c.	Error of Runs.	Mic. At.	Mic.
h.	s.	s.	s.	s.	s.	″	h.	revs.
Aug. 21, 19	s 35.392	l .030	— .168	+ .025	— .314			
24, 19	37.372	.006						
8	37.411	.002						
25, 20	37.426	.004						
26, 8	37.507	.007						
27, 11	37.698	.004						

1 rev. = 34″.515.

Aug. 21. Screw of reversing apparatus works stiffly, and jars the instrument.

40, 41. Mic. recorded 37r.795, 37r.980.

COR. IN R. A.		COR. IN DEC.		Corrected Readings.	Mic. Zero.	OBSERVED		REDUCTION TO 1850.0		NADIR POINT.				
Inst.	Clock.	Inst.	Object.			R. A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean
s.	s.	′ ″	′ ″	°	Rev.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
4.94	+ 35.37					18 27 56.31	+ 87 15	+ 34.08						
.53	35.38					18 44 32.62	33 12	— 0.02						
.49	35.39					18 58 30.66	13 39	+ 0.38						
5.00	35.40					19 17 55.33	2 49	0.50						
5.08	35.41					19 38 7.27	10 15	0.30						
.50	35.41					19 43 27.27	8 29	+ 0.33						
3 34.85	35.42					20 14 42.92	88 52	—100.81						
2 22.39	35.42													
.64	37.36					17 53 7.68	51 31	— 0.26						
13.63	37.37					18 44 32.44	33 12	+ 0.03			Aug.	25, 12*h*.		
										59.4	60.9	59.5	62.5	60.57
22,42	37.37					19 17 55.52	2 49	0.53		58.8	60.7	60.6	62.4	60.63
.49	37.38					19 38 7.09	10 15	0.33						
.48	37.38					19 43 27.53	+ 8 29	0.36		59.10	60.80	60.05	62.45	60.60
.50	37.38					20 9 43.14	— 13 0	+ 0.57						
15.07	37.38					20 14 40.60	+ 88 52	— 98.82			Mic.	39.687	—10	rdgs.
.49	37.41					7 30 24.23	5 36	+ 2.62						
.51	37.41					7 36 4.54	28 23	+ 3 14			Aug.	25, 17.	3*h*.	
.48	37.41					10 17 12.96				57.7	58.3	58.7	58.5	58.30
.48	37.41									57.7	59.5	60.0	58.0	58.80
.48	37.41					10 52 14.43								
		+ 1 56.72	+ 1 11.55	52 86 10.09						57.70	58.90	59.35	58.25	58.55
		1 56.83	1 11.52	10.17										
		1 55.48	1 11.52	8.82							Mic.	39.811	—10	rdgs.
10.89	37.42	1 55.11	1 11.50	8.43	39.705	13 5 45.88	+ 88 30 11.00	— 44.73	+ 25.31					
		1 55.47	1 11.49	8.78										
		+ 1 58.88	1 11.48	12.18							Aug	27, 12.	5*h*.	
.49	37.42					13 17 15.26	— 10 22	+ 2.33		59.8	62.7	62.9	64.0	62.35
2.32	37.41	— 1 37.69	+ 52.42	43 23 18.28	39.769	17 1 35.66	+ 82 16 57.53	- 4.67	— 29.48	59.6	62.8	63.4	63.0	62.20
.48	37.42	+ 2 3.96	— 40.90	323 55 45.23		19 17 55.53	2 49 24.38	+ 0.54	12.06	59.70	62.75	63.15	63.50	62.28
.48	37.42	1 14.99	30.69	331 21 38.90		19 38 7.18	10 15 18.15	0.33	12.23					
11.57	37.42	2 46.28	32.99	329 35 7.71		19 43 27.43	8 28 46.96	0.36	11.51		Mic.	39.685	—5	rdgs
.48	37.42					19 47 56.23	+ 6 2	0.38						
.50	37.43					20 9 43.03	— 13 0	0.58						
.52	37.50					7 24 58.02	+ 32 13	3.16			Aug.	27, 16.	9*h*.	
.48	37.50	+ 1 19.05	36.64	326 42 46.46	39.751	7 31 24.32	5 36 25.71	2.57	— 2.89	58.5	61.0	61.4	60.4	60.32
25.42	37.50	— 29.26	10.35	349 29 20.04		7 36 4.65	28 22 59.29	3.08	+ 2.47	58.8	61.0	60.7	60.5	60.25
.48	37.70	+16 55.66	26.08	331 19 33.10		10 24 32.85	9 57 22.78			58.4	61.0	61.4	59.9	60.18
.48	37.70	—14 42.89	— 26.67	330 47 53.96										
3.17	37.70	43.98	+ 23.96	23 40 7.31		10 54 19.95	62 33 46.59	5.56	— 13.91	58.57	61.0	61.16	60.27	60.25
11.53	37.70	1 42.02	— 30.49	328 13 40.56		11 5 25.81	7 9 48.53				Mic.	39.727	—10	rdgs.
		— 1 35.64	30.49	328 13 46.93										
23.22	37.70					11 41 21.51	15 25	2.88						
0.68	37.70					11 45 50.51	+ 54 32	4.38						
.48	37.53	+ 1 11.44	50.04	317 48 25.10		16 6 27.55	— 3 17 55.65	1.55	18.01					
.51	37.53	— 18.65	— 57.62	295 0 51.36		16 20 11.22	— 26 5 29.39	+ 1.63	9.64					
2.32	37.54	+ 1 30.53	+ 52.38	43 23 20.91		17 1 35.23	+ 82 17 0.16	— 4.30	29.55					
.49	37.54	+ 18.77	— 25.12	335 40 35.89		17 7 47.41	14 34 25.14	+ 1.05	21.78					
.49	37.54	— 34.66	27.37	333 47 2.74		17 27 57.34	+ 12 40 41.99	0.95	20.50					
.52	37.54	— 1 16.01	— 1 37.78	299 30 10.21		17 34 25.26	— 21 36 10.54	+ 1.25	9.32					
.64	37.54	+ 1 5.43	+ 12.47	12 37 15.83		17 53 7.59	+ 51 30 55.08	— 0.17	26.36					
.50	37.54					17 59 54.95	— 18 44							
.51	+ 37.54	+ 2 30.17	— 1 36.12	300 0 55.22		18 4 46.52	— 21 5 25.53	+ 1.12	— 8.65					

bject.	COR. IN R. A.	Observed Semi-diam.	
	Semi-diam.	Hor.	Vert.
	m. s.	m. s.	′ ″
ι - -		1 4.76	
rcury -	+ 0.16		
ι - -		1 4.53	15 49.57
rcury .	.16		3.18
on -	+ 1 4.67		

4. Poor observation. Wire slackened with moist atmosphere.
21 to 26. Transit observed by Lieut. Leigh. Circle and micrometer observations by Prof. Major at 48*m*. 58*s*., 57*m*. 22*s*., 3*m*. 30*s*., 6*m*. 21*s*., 12*m*. 46*s*., and 23*m*. 6*s*.
40, 41. Observation for semi-diameter not very good.
43. At wires V and VI, unsteady.
48. Observed with full aperture: too bright.
51. Wavering.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic. Wire	Mic. Revs	Barometer.	THER'S. At.	Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Revs	In.	°	°
Aug, 27	1	λ Sagittarii	28.4	40.5	52.2	4.4	16.8	28.9	41.0	18 18 4.60	295 38 56.7	60.9	66.0	66.2	62.45	IV.	38.607	30.186	78.5	74.4
	†2	α Lyræ	32.5	46.3	0.5	14.2	28.6	42.7	56.5	18 31 14.47										
	3	β Lyræ		29.4	42.6	55.5	8.7	21.8	34.6	18 44 2.10	354 17 49.4	51.4	53.0	56.2	52.50		40.492	30.188	78.0	73.7
	4	δ Aquilæ	45.5		6.4	18.5	29.4	40.3	51.5	19 17 21.93										
	5	γ Aquilæ		8.0	19.5	30.0	41.4	52.7	3.6	19 38 35.87	331 20 59.86	66.2	65.4	69.5	65.22		41.578	30.180	77.0	72.8
	6	α Aquilæ									329 35 55.0	60.4	62.5	66.5	61.10		39.139	30.180	77.0	72.8
	7	β Aquilæ		57.3	8.4	19.3	30.4	41.4	52.4	19 47 24.87										
30	8	ε Ursæ Minoris	·		27.5	59.0	20.8	42.2	3.7	17 2 20.60										
	9	α Herculis			58.4	9.5	20.4	32.2	43.4	17 7 20.78										
	10	α Ophiuchi	45.5	57.0	8.0	19.4	30.5	41.4	53.0	17 27 19.26	333 47 54.0	61.2	60.5	67.5	60.80		38.842	30.094	80.2	77.7
	11	γ Draconis	36.7	54.6	12.2	30.1	47.4	5.4	22.8	17 52 29.89	12 35 53.4	52.4	55.6	60.9	55.58		41.752	30.104	80.0	76.8
	12	μ¹ Sagittarii	33.2	45.1	56.7	8.5	20.4	32.1	43.8	18 4 8.54	300 2 55.7	58.2	63.0	64.4	60.32		38.830	30.104	80.0	76.5
	†13	δ Ursæ Minoris	16.5	21.8							47 41 60.5	59.9	63.9	65.0	62.33		38.854	30.105		76.0
	14	δ Ursæ Minoris			27.0												38.828			
	†15	δ Ursæ Minoris				31.2				18 20 31.53							38.830	30.106	80.0	76.0
	16	δ Ursæ Minoris					37.0										38.828			
	†17	δ Ursæ Minoris						41.0	46.2								38.858	30.106		76.0
	18	α Lyræ	31.3	45.5	59.8	13.5	27.7	41.7	55.6	18 31 13.59										
	19	δ Aquilæ		55.0	6.2	17.5	28.4	39.5	50.5	19 17 22.85										
	20	α Aquilæ		27.3	38.5	49.5	0.8	11.9	22.7	19 42 55.12										
	21	β Aquilæ	45.4	56.4	7.5	18.4	29.5	40.4	51.3	19 47 18.41										
	22	α² Capricorni	31.4		53.4	5.0	16.5	27.9	38.3	20 9 8.75										
	23	β Capricorni	22.0	33.4	44.7	56.4	7.5	19.0	29.8	20 11 56.11	305 50 51.9	52.2	55.4	59.0	54.62		42.700	30.096	78.2	74.7
	†24	ρ Capricorni				39.4	50.8	2.7	13.4	20 19 56.58	302 47 51.0	57.5	60.0	63.4	57.97		42.408	30.096	78.0	74.6
	25	Moon, 1st L.	21.5	33.4	45.4	57.0	8.8	20.7	32.0	20 34 56.97										
	26	ε Aquarii	21.3	32.0	43.4	54.7	5.9	17.0	27.5	20 38 54.54										
	27	μ Aquarii	21.4	32.9	44.0	55.0	6.2	17.4	28.0	20 43 54.99										
Sept. 1	28	12 Canum Ven.	36.0	50.1	4.2	18.4	32.5	46.6	0.6	12 48 18.34										
	†29	Polaris, S. P.	2.0			1.0	59.8	59.5	5.5	13 0 49.56										
3	30	Sun, 1st & S L.	43.3	54.4	5.5	16.7	27.5	38.3	49.4	10 48 16.44										
	31	Sun, 2d & N. L.	51.3	2.2	13.4	24.8	36.2	47.0	58.0	10 50 24.70										
4	32	α Ursæ Majoris	30.0	53.8	17.5	41.3	5.2	28.3	52.4	10 53 41.21										
5	33	α Virginis	2.5	13.6	25.0	36.2	47.3	58.4	9.5	13 16 36.07										
	34	η Ursæ Majoris	3.7	21.2	38.1	55.3	12.4	29.4	46.4	13 40 55.21										
	35	η Bootis	16.1	27.5	39.3	50.7	2.5	14.0	25.7	13 46 50.83										
	36	α Bootis	32.9	44.4	56.1	7.7	19.4	30.9	42.8	14 8 7.74										
	37	β Lyræ	13.5	26.6	39.8	53.0	6.1	19.3	32.3	18 44 52.94										
	38	ζ Aquilæ	17.1	28.5	40.0	51.2	2.4	13.5	25.0	18 57 51.10	334 44 54.3	61.2	63.4	64.7	60.90		41.212	30.080	75.0	71.3
	39	δ Aquilæ	43.2	54.2	5.2	16.0	27.3	38.0	48.8	19 17 16.10	323 53 56.5	65.2	68.2	67.8	64.42		44.085	30.080	74.8	70.9
	40	γ Aquilæ	54.4	6.0	16.8	27.7	39.0	50.3	1.0	19 38 27.89	331 20 56.2	60.3	64.9	65.1	61.62		41.957	30.076	74.7	70.3
	41	α Aquilæ	14.8	25.8	36.8	47.8	59.0	10.3	21.4	19 42 47.99										
	†42	λ Ursæ Minoris	22.0								49 57 2.5	0.3	9.2	3.4	3.86		39.979	30.070	74.2	69.6
	43	λ Ursæ Minoris		44.0													39.950			
	44	λ Ursæ Minoris			52.0												39.957			
	45	λ Ursæ Minoris				9.0				20 9 31.50							39.937			
	46	λ Ursæ Minoris					24.0										39.940			
	47	λ Ursæ Minoris						38.0									39.962			
	†48	λ Ursæ Minoris															39.980	30.070	74.0	69.4
	49	β Aquarii	26.5	37.5	48.0	59.8	10.7	21.7	32.9	21 22 59.59	314 53 59.1	64.2	71.3	68.5	65.78		39.267	30.072	73.0	68.5
	50	ε Pegasi	35.9	47.1	58.1	9.4	20.6	31.8	42.7	21 36 9.37	330 17 57.1	61.4	65.0	65.5	62.25		40.560	30.072	73.2	68.3
	51	Aquarii			14.3	25.2	36.4	47.0	57.7	21 57 36.12	320 2 55.0	53.0	56.0	57.2	55.35		42.358	30.068	73.0	67.9
	52	Neptune	9.5	20.6	31.7	43.0	54.2	5.0	16.4	22 20 42.91	310 2 53.7	58.6	65.7	63.0	60.25		43.013	30.076	73.0	67.6

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs.
Aug. 27, 11	s 37.698	l .004	— .168	+ .025	— .314			
18	37.545	.005						
30, 19	38.471	.018						
Sept. 1, 13	39.473	.013	— .390	+ .016	— .314			
5, 14	39.926	.012						
19	39.984	.012						
22	40.161	.012						
7, 20	s 41.656	l .006						

1 rev. = 34.515″

Sept. 3. Adjusted the micrometer head.

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	NADIR POINT. B.	NADIR POINT. C.	NADIR POINT. D.	NADIR POINT. Mean.
	s.	s.	′ ″	′ ″	° ′ ″	″	h. m s.	° ′ ″	s.	″	″	″	″	″	″
1	— 0.53	+ 37.55	— 38.91	— 1 55.70	295 36 27.84		18 18 41.62	— 25 29 52.91	+ 1.10	— 6.95					
2	0.55	37.55					18 31 51.47	+ 38 39	0.00			Aug.	30.	19. 6h.	
3	7.09	37.55	+ 26.16	5.58	354 18 13.08	39.734	18 44 32.56	33 11 52.33	0.08	20.31	61.8	64.7	64.4	63.7	63.65
4	4.13	37.55					19 17 55.35	2 49	0.55		61.8	64.7	64.4	64.2	63.78
5	6.06	37.55	+ 1 3.64	30.56	331 21 38.30		19 38 7.36	10 15 17.55	0.34	12.45	61.6	64.2	64.9	64.7	63.85
6		37.55	— 20.54	32.85	329 35 7.70			8 28 46.95		11.76					
7	6.00	37.55					19 47 56.42	6 2	+ 0.39		61.73	64.53	64.56	64.20	63.76
8	1 23.99	38.44					17 1 35.05	82 17	— 3.70						
9	11.82	38.44					17 7 47.40	14.34	+ 1.09			Mic.	39.544	—10	rdgs.
10	.48	38.44	28.00	— 27.23	333 47 5.57	39.653	17 27 57.22	12 40 44.82	+ 0.99	20.58					
11	.64	38.45	1 12.43	+ 12.41	12 37 20.42		17 53 7.70	+ 51 30 59.67	— 0.09	26.63					
12	.51	38.45	28.42	— 1 35.55	300 0 56.36		18 4 46.48	— 21 5 24.39	+ 1.15	8.55					
13			29.18	+ 1 0.91	47 42 34.06										
14			28.70	1 0.91	34.54							Sept.	3.	11. 5h.	
15	5.05	38.46	28.41	1 0.91	34.83		18 21 4.94	+ 86 36 13.73	— 20.69		60.8	63.9	67.4	65.7	64.45
16			28.81	1 0.91	34.43						60.4	64.8	67.5	66.4	64.78
17			— 28.71	+ 1 0.91	34.53										
18	.55	38.46					18 31 51.50	38 39	+ 0.05		60.60	64.35	67.45	66.05	64.61
19	5.98	38.47					19 17 55.34	2 49	0.57			Mic.	39.174	—10	rdgs.
20	6.03	38.48					19 43 27.57	8 29	0.39						
21	.48	38.48					19 47 56.41	+ 6 3	0.40						
22	4.25	38.49					20 9 42.99	— 13 0	0.59						
23	.50	38.49	+ 1 45.16	— 1 16.75	305 51 23.03		20 11 34.10	15 14 57.72	0.61	5.90					
24	17.83	38.49	1 35.62	1 26.01	302 48 7.58		20 20 17.24	18 18 13.17	0.61	5.02					
25	.41	38.50					20 36 39.97	16 13				Sept.	5.	21. h.	
26	.49	38.50					20 39 32.55	10 3	0.61		0.5	3.8	7.0	5.2	4.13
27	.49	38.50					20 44 33.00	— 9 33	0.46		1.4	4.8	8.0	5.4	4.90
28	— .78	39.47					12 48 57.03	+ 39 8	+ 3.11						
29	+ 4 22.28	39.47					13 5 51.31	88 30	— 48.37		0.95	4.30	7.50	5.30	4.51
30	— .70	39.73										Mic.	39.757	—10	rdgs.
31	.70	39.73					10 49 59.60								
32	1.04	39.99					10 54 20.16	+ 62 34	+ 5.50						
33	.71	39.92					13 17 15.28	— 10 22	2.43						
34	.86	39.92					13 41 34.27	+ 50 4	3.12						
35	.72	39.92					13 47 30.03	19 9	2.47						
36	.72	39.93					14 8 46.95	19 58	2.34			Sept.	7.	20. 3h.	
37	.76	39.99					18 44 32.17	33 12	0.26		60.0	56.7	58.0	61.7	59.10
38	.71	39.99	45.72	26.38	334 45 20.34	39.887	18 58 30.38	13 38 59.49	0.59	16.49	60.9	57.0	58.7	60.2	59.20
39	.70	40.00	2 44.88	40.77	323 55 48.53		19 17 55.40	2 49 27.78	0.67	12.66					
40	.71	40.00	1 11.43	— 30.60	331 21 42.45		19 39 7.18	10 15 21.70	0.46	14.22	60.45	56.85	58.35	60.95	59.15
41	.71	40.00					19 43 27.28	8 28	+ 0.48						
42			1.86	+ 1 6.68	49 58 12.41							Mic.	39.746	—10	rdgs.
43			1.86	1 6.69	12.42										
44			2.30	1 6.69	12.85										
45	+ 4 21.56	40.06	1.70	1 6.70	12.26		20 14 33.12	+ 88 51 51.67	— 89.29	24.58					
46			1.80	1 6.70	12.36										
47			1.91	1 6.71	12.48										
48			+ 1.57	+ 1 6.71	12.14										
49	— .70	40.15	— 21.41	— 56.41	314 52 47.95		21 23 39.04	— 6 13 32.80	+ 0.38	4.55					
50	.71	40.15	+ 23.22	32.09	330 17 53.38		21 36 48.81	+ 9 11 32.63	0.13	5.48					
51	11.68	40.16	1 25.27	47.11	320 3 33.51		21 57 4.60	— 1 3 47.24	+ 0.26	— 3.49					
52	— .71	40.16	+ 1 47.88	— 1 6.64	310 3 41.49		22 21 22.36	— 11 2 39.26							

No.	Object.	COR. IN R. A. Semi-diam.	Observed semi-diam. Hor.	Observed semi-diam. Vert.
		m. s.	m. s.	′ ″
25	Moon -	+ 1 4.91		
30	Sun - -		1 4.13	

2. Unsteady.
13 to 17. Observed for Dec. at 17*m.* 34*s.*, 19*m.* 2*s.*, 20*m.* 35*s.*, 22*m.* 9*s.*, and 23*m.* 43*s.*
24. Observed for Dec. at 20*m.* 35*s.*
29. At wires II and III, clouded.
42 to 48. Misty. Observed for Dec. at 7*m.* 43*s.*, 10*m.* 42*s.*, 12*m.* 4*s.* 12*m.* 55*s.*, 14*m* 38*s.*, 18*m.* 15*s.*, and 20*m.* 43*s.*

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES.								READINGS OF CIRCLE AND MICROMETER							Barometer.	THER'S.	
			I.	II.	III.	IV.	V.	VI.	VII.	Mean.	A.	B.	C.	D.	Mean.	Mic.			At.	Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Rev.	In.	°	°
Sept. 7	1	α Ophiuchi - - - -	42.3	53.9	5.2	16.5	27.4	39.0	50.1	17 27 16.34						IV.				
	†2	γ Draconis - - - -	34.3	51.3	9.2	26.4	44.3	2.2	19.5	17 52 26.74										
	†3	[illegible]	5.0		30.5		55.5	8.0	21.0	18 2 48.00	291 29 49.4	45.7	51.0	53.4	49.88		42.554	30.100	74.2	66.7
			.9	42.0	56.0	10.2	24.3	38.3	52.4	18 31 10.16	359 47 64.0	59.7	61.5	65.2	62.60		35.370	30.112	73.5	65.8
			.9	24.8	38.0	51.1	4.2	17.4	30.2	18 43 51.09	354 18 3.9	3.2	3.9	9.6	5.15		40.034	30.122	72.8	65.5
									12.0	21 0 12.00	359 5 59.7	56.4	56.5	62.8	58.85		42.330	30.150	69.4	61.2
			.8	27.3	40.0	52.7	5.3	17.9	30.5	21 5 52.64	350 41 55.2	53.2	56.0	60.4	56.20		42.558	30.162	69.0	60.5
			.2	34.7	57.9	21.3	44.7	8.3	31.4	21 14 21.36										
					34.2	5.7	37.8	9.8	41.4	21 26 37.78										
				46.2	57.0	8.0	19.3	30.3	41.3	21 36 13.66										
				1.7	12.3	23.5	34.7	45.6	56.3	21 57 29.[illegible]	320 2 56.0	58.8	59.8	65.0	59.65		42.289	30.164	67.4	58.9
			.0	37.2	53.5	9.9	26.6	43.1	59.6	8 48 9.[illegible]										
			.0	7.5	18.4	29.6	40.5	51.5	2.5	9 19 29.43										
			.3	11.4	23.7	35.5	47.6	59.4	11.8	9 36 35.53										
			.3	16.4	27.4	38.8	50.1	1.2	12.2	9 59 38.77										
			.4	6.7	17.8	28.9	39.7	51.0	1.7	11 13 28.74										
			.7	15.0	26.0	37.0	48.0	59.0	10.0	11 15 36.[illegible]										
			.3	10.7	22.2	33.2	44.2	55.2	6.3	12 26 33.16	317 44 53.2	47.2	49.0	54.4	45.95		40.669	30.464	[illegible]	70.5
			.4	42.2	56.5	10.4	24.5	38.4	52.5	18 31 10.[illegible]	359 44 58.0	61.1	66.6	63.2	62.20		40.823	30.416	69.7	62.0
			.9	25.0	38.1	51.2	4.5	17.4	30.5	18 43 51.23	354 18 0.9	0.7	1.0	7.3	2.47		[illegible]	30.413	61.6	69.8
			.2	52.2	3.3	14.4	25.5	36.4	47.2	19 17 14.31	323 57 2.7	3.6	6.3	9.7	5.62		38.796	[illegible]	69.4	59.7
			.0	53.2	4.1	15.3	26.2	37.2	48.1	19 47 15.[illegible]	327 9 0.4	2.0	4.5	7.6	3.62		40.411	30.412	68.2	[illegible]
			.2	39.5	50.5	1.8	13.4	24.5	35.8	20 9 1.96										
					16.0	30.3	43.9	58.0	12.0	20 59 44.[illegible]	359 5 56.5	53.7	54.5	60.0	56.18		42.537	30.420	67.0	56.3
			.5	27.3	40.1	52.4	5.3	17.7	30.1	21 5 52.49	350 44 56.0	53.5	54.7	59.3	55.88		37.534	30.416	67.2	56.2
			.6	46.0	57.0	7.9	19.0	[illegible]	41.4	21 36 8.01	330 18 1.6	3.2	4.8	9.4	4.80		40.498	30.414	66.0	55.3
			.5	6.3	17.1			52.4		22 1 17.57	299 5 60.0	56.7	62.9	64.5	61.02		[illegible]	[illegible]	65.0	54.8
			.5	48.4	0.4	11.4	22.7	33.5	44.8	22 20 11.[illegible]	310 2 59.[illegible]	57.2	62.3	63.0	60.55		37.980	30.408	67.8	54.4
			.6	11.5	23.4	35.5	47.5	59.5	11.6	9 36 35.50										
			.1	16.3	27.5	38.7	50.0	1.3	12.4	9 59 38.76										
			.3	52.3	3.4	14.4	25.2	36.4	47.0	19 17 14.[illegible]	323 57 4.7	5.3	7.2	11.4	7.15		38.702	[illegible]	70.7	65.7
			.4	3.8	14.9	26.0	37.5	48.1	59.5	19 38 25.99	331 23 59.0	60.2	60.8	65.7	61.43		36.717	30.315	70.7	64.3
			.7	23.9	35.2	46.2	57.5	8.1	19.7	19 42 46.[illegible]	329 35 47.0	48.[illegible]	49.0	53.5	49.38		[illegible]	30.315	70.7	[illegible]
			.8	53.0	4.0	15.0	[illegible]	37.0	48.2	19 47 15.03	327 9 11.1	12.8	14.5	18.9	14.33			30.316	70.5	63.8
			.9	39.3	50.5	1.7	13.3	24.3	35.6	20 9 1.80	308 2 58.2	55.8	61.1	63.5	59.45	V.	37.290	[illegible]	70.2	63.1
					23.2	38.3	54.2	9.9	25.2	20 35 54.[illegible]	5 50 62.4	54.2	58.5	62.7	59.45	IV.	40.458	30.328	69.8	62.4
			.2	2.6	16.8					20 59 2.53										
					40.0	52.7	4.8	17.8	[illegible]	21 5 5.10	350 44 61.9	58.7	61.4	66.2	62.05		37.325	30.328	[illegible]	61.5
			.2	34.7	58.1	21.2	44.9	7.9	31.0	21 14 21.29	23 2 64.4	55.4	60.5	63.9	61.05		40.195	30.326	69.2	60.9
			.9	35.9	47.0	58.0	9.3	20.2	31.3	21 23 58.[illegible]	314 54 2.8	2.4	7.8	8.7	5.43		39.308	30.322	68.8	[illegible]
			.5	45.7	56.8	7.8	19.0	[illegible]	41.2	21 36 7.89										
			.8	37.2	48.2	59.5	10.4	21.3	32.9	22 19 59.33	310 3 1.8	0.4	6.5	7.4	4.03		35.823	30.310	67.8	59.5
					6.4	17.5	28.5	40.0	51.0	22 33 28.68										
					27.2	40.0	52.7	5.2	17.9	22 48 52.60	290 41 56.7	54.2	60.7	61.8	58.35		43.295	30.308	67.2	58.8
					27.2	38.5			12.7	9 59 46.13										
			.1	28.3	39.4	50.2	1.2	12.4	23.2	11 27 50.26										
			.2	36.3	47.2	58.2	9.2	20.2	31.0	11 29 58.04										
			.4	41.0	52.9	4.2	16.0	27.5	39.4	14 8 4.34										
			.0	57.0	57.5	59.0	58.5	1.0	4.0	13 4 59.57										
			.3	9.4	20.7	32.0	43.2	54.2	5.3	13 16 31.87										
			.5	40.4	51.9	3.5	15.5	26.8	38.4	14 8 3.57										
			.2	4.0	15.3	26.0	37.4	48.5	59.5	9 19 26.27										

			VALUE OF		Error of runs.	Mic. coin.		1 rev. = 34.515″
			m	c				
			s.	s.	″	h.	revs.	
			+ .016	+ .314				
8, 9	41.734	.001						
10, 20	41.644	.009						
10, 10	41 861	.006						
12, 21	41 764	.017						
14, 14	43.147	.034						
15, 14	44 013	.028						
16, 10	45.010	.016						

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	″	′	″	″	″	″	″
1	— .71	+ 41.64					17 27 57.27	+ 12 41	+ 1.16						
2	.87	41.64				39.722	17 53 7.51	51 30	0.19						
3	5.80	+ 41.64	+ 1 37.75	— 2 18.97	291 29 8.65	39.722	18 3 23 84	— 29 37 12.10					h.		
4	.78	41.64	— 2 30.20	0.23	359 45 32.17		18 31 51.02	+ 38 39 11.42	+ 0.26	— 23.20		Sept.	10, 20.	6	
5	.76	41.65	+ 10.78	5.65	354 18 10.28		18 44 31.98	33 11 49.53	+ 0.31	21.58	58.0	55.1	56.7	57.6	56.85
6	42.47	41.66	1 29.78	0.87	359 7 27.76		21 0 11.19	38 1 7.01	— 0.46	9.62	57.6	54.0	55.8	57.0	56.10
7	.74	41.66	1 37.89	9.36	350 43 24.73		21 6 33.56	29 37 3.98	0.28	9.64	58.2	54.3	55.2	56.5	56.05
8	1.03	41.66					21 15 1.99	61 57	2.46		58.2	53.8	55.4	56.5	55.97
9	33.17	41.66					21 26 46.27	69 54	— 4.10		57.7	54.0	54.7	56.5	55.73
10	6.27	41.66					21 36 49.07	+ 9 11	+ 0.14		57.94	54.24	55.56	56.82	56.14
11	6.20	41.67	1 28.61	48.09	320 3 40.17		21 57 4.47	— 1 2 40 58	0.26	3.60					
12	.85	41.73					8 48 50.87	+ 48 38	3.91						
13	.71	41.73					9 20 10.45	— 8 0	2.46			Sept.	12, 20.	5h.	
14	.73	41.73					9 37 16.53	+ 24 28	3.07		58.0	53.7	54.9	56.4	55.75
15	.71	41.73					10 0 19.79	+ 12 42	2.84		57.2	53.0	53.9	57.0	55.28
16	.70	41.74					11 15 13.86				58.9	53.5	55.7	58.2	56.58
17	.70	41.74									58.5	54.9	56.3	57.7	56.85
18	.71	41.74	24.22	46.99	317 44 28.18		12 27 14.36	— 3 21 52.57			58.4	54.8	56.5	57.3	56.75
19	.78	41.63	30.10	.23	359 45 2.20	39.951	18 31 51.26	+ 38 39 11.32	0.32	23.48	57.2	54.0	55.0	58.3	56.12
20	.76	41.63	+ 15.29	5.67	354 18 12.09		18 44 32.10	33 11 51.34	0.36	21.87	58.03	53.98	55.38	57.48	56.22
21	.70	41.64	— 39.86	42.10	323 55 43.66		19 17 55.25	2 49 22.91	0 73	12.88					
22	.71	41.64	+ 15.88	37.44	327 8 42.06		19 47 56.09	+ 6 2 21.31	0.55	12.24					
23	.71	41.64					20 9 42.90	— 13 0	+ 0.71						
24	14.70	41.65	+ 1 29.25	00.88	359 7 25.43		21 0 10.99	+ 38 1 3.80	— 0.44	10.31					
25	0.74	41.65	— 1 23.43	09.52	350 43 22.53		21 6 33.40	+ 29 37 1.78	— 0.26	10.20					
26	— 0.71	41.66	+ 18.87	33.29	330 17 50.38		21 36 48.96	+ 9 11 29.63	+ 0.14	5.99					
27	+ 11 09	41.66	+ 3 29.44	1 39.17	299 7 51.29		22 2 10.32	— 21 58 29.46							
28	— 0.71	41.67	— 1 8.04	1 9.29	310 0 43.22		22 20 52.20	— 11 5 37.53							
29	.73	41.86					9 37 16.63	+ 24 28	+ 3.05						
30	.71	41.86					10 0 19.91	12 42	— 2.82						
31	.71	41.74	43.21	41.51	323 55 42.43	39.954	19 17 55.32	2 49 21.68	+ 0.75	12.95					
32	.71	41.74	1 51.72	31.21	331 21 38.50		19 39 7.02	10 15 17.75	0.54	13.72					
33	.71	41.74	— 10.32	33.55	329 35 5.51		19 43 27.22	8 28 44.76	0.56	12.93					
34	.71	41.74	+ 3.78	36.94	327 8 41.17		19 47 56.06	+ 6 2 20.42	0.56	12.34					
35	.72	41.75	4 18.61	— 1 12.92	308 6 5.14		20 9 42.83	— 13 0 15.61	+ 0.72	6.26					
36	— 16.26	41.76	+ 17.40	+ 05.89	5 51 22.74		20 36 19.66	+ 44 45 1.99	— 0.73	14.38					
37	+ 27.04	41.76					21 0 11.33	38 1	0.47						
38	— 13.35	41.76	— 1 30.74	— 09.40	350 43 21.91		21 6 33.51	29 37 1.16	0.25	10.56					
39	1.03	41.77	+ 8.32	+ 24.51	23 3 33.88		21 15 2.03	+ 61 57 13.13	— 2.36	10.33					
40	.71	41.77	— 22.30	— 57.73	314 7 14.20		21 23 39.15	— 6 13 35.35	+ 0.39	— 4.66					
41	.71	41.77					21 36 48.95	+ 9 11	0.14						
42	.71	41.79	— 2 25.58	1 8.62	309 59 33.03		22 20 40.41	— 11 6 47.72							
43	11.85	41.79					22 33 58.62	+ 10 3	0.04						
44	13.48	41.79	+ 1 55.32	— 2 31.45	290 41 22.22		22 49 20.91	— 30 24 58.53	0.38	+ 0.69					
45	8.20	41.99					10 0 19.92	+ 12 42	2.78						
46	.70	43.06					11 29 36.51								
47	.70	43.06													
48	— .72	43.15					14 8 46.77	19 58	+ 2.43						
49	+ 11.02	43.99					13 5 54.58	+ 88 30	— 54.39						
50	— .71	43.99					13 17 15.15	— 10 22	+ 2.49						
51	.72	44.01					14 8 46.86	+ 19 58	2.44						
52	— .71	+ 45.00					9 20 10.56	— 8 0	+ 2.35						

No.	Object.	COR. IN R.A. Semi-diam.	Observed Semi-diam. Hor.	Vert.
		m. s.	m. s.	′ ″
16	Sun - -	- - - - - -	1 4.11	
18	Mercury	+ .17		
46	Sun - -	- - - - - -	1 3.89	

2, 31. Observed with full aperture.
2, 18, 21, 24, 25, 29, 36, 37. Unsteady.
3, 6. Observed for dec. at wire VII.
3, 27, 29, 52. Faint.
40. With circle unclamped.

DATE.	No. for ref.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic.		Barometer.	THER'S. At.	Ex.
1849.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Revs.	In.	°	°
Sept. 16	† 1	α Leonis - - - - - -	2.0	13.3	24.3	35.7	46.9	58.1	9.2	9 59 35.64						IV.				
	2	α Ursæ Majoris - -	25.1	49.0	12.5	36.4	0.4	24.3	47.8	10 53 36.50										
17	3	Sun, 1st L. - - -	1.3	12.4	23.6	34.4	45.2	57.7	7.4	11 38 34.57										
	4	Sun, 2d L. - - -	9.4	20.6	31.5	42.4	53.5	4.4	15.3	11 40 42.44										
18	5	Polaris, S. P. - -	59.5	56.0	57.5	58.0	56.0	2.0	59.0	13 4 58.29										
	6	η Ursæ Majoris - -	58.4	15.3	33.0	49.6	7.0	24.1	41.0	13 40 49.77										
	7	α Bootis - - - - -	27.3	39.0	50.6	2.0	14.1	25.5	37.4	14 8 2.27										
	† 8	α Aquilæ - - - -	9.4	20.2	31.3	42.3	53.2	4.5	15.6	19 42 42.36										
	9	β Aquilæ - - - -	38.1	49.4	0.3	11.4	22.5	33.5	44.3	19 47 11.36										
	10	α² Capricorni - - -	24.5	35.8	47.0	58.3	9.6	20.8	32.0	20 8 58.29										
	†11	α Cygni - - - - -				35.0	51.0	6.3	21.8	20 35 58.53										
	†12	61¹ Cygni - - - - -	44.4	58.5	12.3	26.5	40.2	54.4	8.4	20 59 26.39										
	13	ζ Cygni - - - - -		23.4	36.2	49.0	1.3	14.1	26.6	21 5 55.10	350 45 2.9	0.9	0.2	5.9	2.48		36.695	30.208	74 0	62.8
	14	α Cephei - - - -	7.6	31.0	54.7	17.3	41.3	5.0	27.5	21 14 17.77	23 3 5.0	0.0	0.3	4.8	2.55		39.660	30.206	73.4	61.9
	15	ε Pegasi - - - - -	30.9	42.0	53.2	4.5	15.4	26.4	37.4	21 36 4.26	330 17 60.0	60.2	59.0	63.9	60.78			30.210	72.7	61.6
	†16	Metis - - - - -	50.9	3.0	14.4	26.3	38.3	50.0	2.0	21 55 26.41	298 53 58.4	57.6	62.4	63.9	60.57		41.659	30.216	71.5	61.1
	17	Neptune - - - -	47.7	59.2	10.1	21.4	32.5	43.7	54.8	22 19 21.34	309 56 56.0	58.7	60.2	62.8	59.43		40.171	30.217	71.1	60.7
21	18	61¹ Cygni - - - - -					40.0	54.0	8.0	20 59 54.00	359 5 65.3	60.8	59.0	64.8	62.48		41.840			60.7
	19	ζ Cygni - - - - -	11.0	23.4	36.2	48.8	1.3	14 0	26.5	21 5 48.74	350 45 0.3	0.9	0.4	5.6	1.80		36.815	30.056	66.2	60.4
	20	α Cephei - - - -	7.2	30.4	54.4	17.5	40.8	4.1	27.4	21 14 17.40	23 2 62.8	58.0	59.8	63.2	60.95		39.749	30.052	66.5	60.3
	21	β Aquarii - - - -	21.4	32.3	43.1	54.1	5.2	16.3	27.5	21 22 54.27	314 54 4.5	7.1	8.4	11.8	7.95		38.567	30.056	66.2	60.2
	22	ε Pegasi - - - - -	30.3	42.0	53.0	4.0	15.4	26 3	37.3	21 36 4.04	330 17 55.7	58.7	57.0	62.8	58.55		40.125	30.052	65.9	59.9
	†23	Metis - - - - -	0.5	12.0	24.3				11.2	21 53 27.00	298 50 55.5	57.9	57.2	61.1	57.93		43.850	30.050	65.4	59.4
	†24	Neptune - - - -	31.2	42.4	53.4	5.0	16.0	27.2	38.2	22 19 4.77	309 54 14.0	14.1	16.3	20.2	16.15		42.254	30.048	64.3	58.9
	25	α Piscis Australis - -	57.8	10.6	23.3	36.1	48.8	1.3	14.0	22 48 35.99	290 42 1.1	1.7	5.8	6.9	3.88		42.549	30.050	63.8	58.3
	26	α Pegasi - - - - -	59.0	10.2	21.1	32.9	44.3	55.6	6.8	22 56 32.84	335 30 2.5	4.5	5.6	10.2	5.70		40.584	30.048	63.8	58.5
24	27	Sun, 1st L. - - -	9.1	20.3	31.3	42.3	53.1	4.1	15.2	12 3 42.20										
	28	Sun, 2d L. - - -	17.2	28.2	39.2	50.1	1.0	12.2	23.0	12 5 50.13										
	†29	Polaris, S. P. - -	4.0	59.5	59.0	1.0	59.0	58.0	3.0	13 5 0.50										
	30	α Bootis - - - - -	25.4	37.2	48.8	0.4	12.1	24.0	35.3	14 8 0.46										
	†31	Neptune - - - -	13.5	24.2	36.2	47.2	58.2	9.6	20.2	22 18 47.01	309 53 57.0	57.4	57.4	63.4	58.80		40.110	29.922	62.7	56.0
	32	ζ Pegasi - - - - -	39.4	50.5	1.3	12.5	24.0	35.0	46.2	22 33 12.70	331 9 1.4	4.8	2.3	8.1	4.40		40.945	29.928	63.4	57.1
	33	α Piscis Australis - -	56.2	9.0	21.3	34.5	47.3	0.0	12.8	22 48 34.44	290 42 0.0	0.2	3.6	4.8	2.15		42.575	29.920	62.4	56.4
	34	α Pegasi - - - - -	57.3	8.5	20.2	31.3	42.8	54.0	5.4	22 56 31.36	335 29 58.0	61.7	60.0	68.0	61.93		40.757	29.926	62.5	56.0
	†35	ι Piscium - - - -	54.6	5.7	16.9	28.0	38.8	50.0	1.1	23 31 27.87	325 53 58.5	63.3	59.0	67.0	61.95		42.540	29.932	62.2	54.3
	36	α Leonis - - - -	0.3	11.4	22.7	34.0	45.2	56.3	7.6	9 59 33.93	333 47 60.0	60.9	56.2	63.9	60.25		40.890	29.988	63.0	66.9
25.	37	Sun, 1st and N. L. -	45.2	56.4	7.2	18.1	29.2	40.1	51.1	12 7 18.19	320 5 58.7	60.4	60.3	64.9	61.08	VI.	44.452	29.956		70.8
	38	Sun, 2d and S. L. -		4.9	15.1	26.2	37.2	48.9	59.0	12 9 31.88	320 5 58.0	59.9	60.4	64.7	60.75	II.	39.708	29.954	66.5	72.4
	†39	Polaris, S. P. - -	6.0	3.0	2.0	2.0	4.0	6.0	1.0	13 5 3.43										
	40	η Ursæ Majoris - -	56.2	14.0	31.1	48.0	5.2	22.2	39.3	13 40 48.00	11 8 48.2	42.9	43.5	49.2	45.95		42.247	29.918	70.8	75.2
	41	α Bootis - - - - -	25.3	37.0	49.0	0.5	12.2	24.0	35.3	14 8 0.47	341 6 1.9	2.9	0.3	7.2	3.08	IV.	37.626	29.914	71.7	76.3
	42	γ Draconis - - - -		45 3	3.0	20.4	38.3	55.8	13.1	17 52 29.32	12 35 58.8	50.0	52.5	56.2	54.38		41.548	29.844	68.8	70.5
	†43	μ¹ Sagittarii - - - -		36.2	48.0	59.7	11.5	23.4	35.0	18 4 5.63	299 59 57.2	57.4	58.1	60.7	58.35		43.820	29.840	69.5	69.7
	44										47 41 60.7	57.4	59.8	60.7	59.65		38.740			
	45			1.8													38.732			
	46				6.5												38.728			
	47	δ Ursæ Minoris -				11.5				18 21 44.30							38.703	29.840	69.6	68.8
	48						17.0										38.722			
	49							22.0									38.738			
	50								27.0								38.747			68.2
	51	α Lyræ - - - - - -	22.4	36.6	50.8	4.9	19.0	32 9	46.8	18 31 4.77										
	52	β Lyræ - - - - - -	6.4	19.4	32.4	45.4	59.0	12.0	25.0	18 43 45.66	354 17 55.5	62.7	60.2	65.9	61.08		39.974	29.836	69.7	66.9

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c	Error of runs.	Mic. coin. At	
h.	s.	s.	s.	s.	s.	″	h.	revs.
Sept. 18, 14	s 45.186	l .008	— .390	+ .016	— .314			
21	45.249	.006						
21, 22	45.410	.012						
24, 14	46.921	.010					22	40.110
23	46.866	.006						
25, 13	46.890	.000						
18	46.894	.000						

1 rev. = 34.″515.

24. Circle reading recorded, 309° 53′, &c.
43. Transit recorded, 37s.2, 49.0, &c.

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	— .71	+ 45.01					10 0 19.94	+ 12 42	+ 2.74						
2	1.04	45.02					10 54 20.48	62 33	5.35			Sept.	18.	20.5	.
3	.71	45.04	}				11 40 22.83				60.9	59.8	58.2	60.5	59.85
4	— .71	45.04									60.8	60.2	58.2	60.6	59.95
5	+ 11.03	45.06					13 5 54.38	88 30	— 55.28		61.1	59.8	58.0	60.2	59.78
6	— .86	45.18					13 41 34.09	50 4	+ 3.33		60.93	59.93	58.13	60.43	59.86
7	.72	45.19					14 8 46.74	19 58	2.49						
8	.71	45.24					19 43 26.89	8 29	0.67			Mic.	39.325	—10	rdgs.
9	.71	45.24					19 47 55.89	+ 6 2	0.67						
10	.72	45.24					20 8 42.81	— 13 0	+ 0.82						
11	23.97	45.25					20 36 20.11	+ 44 45	— 0.59						
12	.77	45.25					21 0 10.87	38 1	0.32			Sept.	21.	22.5*h*	.
13	7.06	45.25	— 1 30.64	— 9.33	350 43 22.51	39.321	21 6 33.29	29 37 1.76	0.16	— 11.58	1.1	0.7	0.5	2.2	1.12
14	1.03	45.25	+ 11.69	+ 24.35	23 2 38.59		21 15 1.99	61 57 17.84	— 2.18	12.00	1.5	1.0	0.0	3.0	1.38
15	.71	45.25	25.51	— 32.65	330 17 53.64		21 36 48.80	+ 9 11 32.89	+ 0.21	6.69	1.3	1.4	0.3	2.0	1.25
16	.74	45.25	1 20.24	1 38.30	298 53 42.51		21 56 10.92	— 22 12 38.24			1.30	1.03	0.27	2.4	1.25
17	.71	45.26	29.34	1 8.16	309 58 20.61		22 20 5.89	— 11 10 0.14							
18	28.60	45.40	+ 1 26.65	0.87	359 7 28.16	39.329	21 0 10.80	+ 38 1 7.51	— 0.27	12.55		Mic.	39.293	—10	rdgs.
19	.74	45.40	— 1 26.79	— 9.33	350 43 25.46		21 6 33.40	29 37 4.71	0.12	12.04					
20	1.03	45.40	+ 14.48	+ 24.32	23 3 39.75		21 15 1.77	+ 61 57 19.00	— 2.09	12.78					
21	.71	45.40	— 26.31	— 57.30	314 52 44.34		21 23 38.96	— 6 13 36.41	+ 0.48	4.68					
22	— .71	45.41	+ 27.46	32.61	330 17 53.40		21 36 48.74	+ 9 11 32.65	0.23	— 6.92		Sept	24.	23*h*.	
23	+ 8.14	45.41	2 36.01	1 38.35	298 51 55.59		21 54 20.55	— 22 14 25.16			58.2	57.4	55.8	57.5	57.22
24	— .71	45.41	1 40.94	1 8.12	309 54 48.97		22 19 49.47	11 11 31.78			58.3	57.7	56.1	57.8	57.48
25	.76	45.42	1 51.12	2 30.34	290 41 24.66		22 49 20.65	— 30 24 56.09	+ 0.40	+ 1.88	58.0	57.5	56.0	58.1	57.40
26	.71	45.42	43.30	26.12	335 30 22.88		22 57 17.55	+ 14 24 2.13	— 0.02	— 2.49	58.17	57.53	55.97	57.80	57.39
27	.70	46.90	}				12 5 32.36								
28	— .70	46.90										Mic.	39.508	—10	rdgs.
29	+ 11.04	46.91					13 5 58.45	88 30	— 57.42						
30	— .72	46.92					14 8 46.66	+ 19 58	+ 2.54						
31	.71	46.86	23.40	1 8.28	309 53 13.92	39.432	22 19 33.16	— 11 13 6.83							
32	.71	46.86	52.24	31.53	331 9 25.11		22 33 58.85	+ 10 3 4.36	0.08	— 3.91		Sept.	25.	20*h*.	
33	.76	46.86	1 48.50	2 30.27	290 41 20.38		22 49 20.54	— 30 25 0.37	+ 0.40	+ 2.25	61.7	60.2	58.7	60.7	60.32
34	.71	46.87	45.75	26.14	335 30 21.54		22 57 17.52	+ 14 24 0.79	— 0.03	— 2.88	61.2	60.2	58.2	60.8	60.10
35	.70	46.87	1 47.29	38.94	325 55 10.30		23 32 14.04	4 48 49.55	+ 0.08	0.62	61.7	60.0	58.7	60.2	60.15
36	.71	46.89	50.34	27.70	333 48 22.89	39.384	10 0 20.11	+ 12 42 2.14	+ 2.60	9.51	61.53	60.13	58.53	60.57	60.19
37	.70	46.89	+ 17 26.68	40.66	320 22 47.10	}	12 9 8.48	— 0 59 29.67							
38	— 6.19	46.89	— 14 22.53	— 43.17	319 50 55.05							Mic.	39.378	—10	rdgs.
39	+ 11.04	46.89					13 6 1.36		— 57.65						
40	— .86	46.89	+ 1 38.81	+ 10.92	11 10 35.68		13 41 34.03	+ 50 4 14.93	+ 3.41	22.02					
41	.72	46.89	— 1 0.68	— 18.91	341 4 43.49		14 8 46.64	19 58 22.74	2.54	22.88					
42	9.70	46.89	+ 1 14.69	+ 12.46	12 37 21.53		17 53 6.51	+ 51 31 0.78	0.80	27.66					
43	6.62	46.89	+ 2 33.11	— 1 36.00	300 0 55.46		18 4 45.90	— 21 5 25.29	+ 1.63	8.35					
44			— 23.27	+ 1 1.24	47 42 37.62										
45			22.76	1 1.25	38.14										
46			22.73	1 1.26	38.18										
47	1 38.10	46.89	23.50	1 1.28	37.43		18 20 53.09	+ 86 36 17.09	— 10.10	26.01					
48			23.20	1 1.29	37.74										
49			22.99	1 1.30	37.96										
50			— 23.16	+ 1 1.31	37.80										
51	.78	46.89					18 31 50.86	38 39	+ 0.70						
52	.76	+ 46.89	+ 20.36	— 5.58	354 18 15.86		18 43 31.79	+ 33 11 55.11	+ 0.70	22.82					

No.	Object.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
3	Sun - -		1 3.94	
27	Sun - -		1 3.96	
37	Sun - -		1 4.10	15 56.03

1, 8, 11, 12, 35. Unsteady; 11 blurred.
16, 23. Very faint; 16 observed for dec. at 56*m.* 4*s.*
29. Observed in the northern part of the field, near mic. wire VII, mic. IV being at 45 rev.
31. Observed for dec. with fixed wire.
39. Observed in southern part of the field, near mic. wire I, mic. IV being at 35 rev.

DATE.	No.	OBJECT OBSERVED.	TIMES OF TRANSIT OVER WIRES. I.	II	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE & MICROMETER. A.	B.	C	D.	Mean.	Mic. Wire	Mic. Revs.	Barometer.	THER'S. At.	Ex.
			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Revs.	In.	°	°
1849. Oct. 26	†1	α Pegasi	42.0	53.4	4.4	16.4	27.5	38.8	50.2	22 56 16.10						IV.				
	2	γ Cephei	54.9	43.8	31.8	19.0	7.6	55.4	43.0	23 32 19.36										
27	3	α Lyræ	6.6	20.9	34.8	48.6	3.0	16.6	30 9	18 30 48.77	359 46 41.8	38.9	39.4	46.4	41.62		38.549	30.232	63.0	65.1
	4	ζ Aquilæ	54.2	5.5	16.7	28.0	39.4	50.5	1.8	18 57 28.01	334 46 43.8	45.[illegible]	40.8	51.0	45.22	d	38.721	30.240	63.5	63.9
	5	δ Aquilæ	20.2	31.2	42.1	53.1	4.1	15.0	26.0	19 16 53.10	323 56 53.7	56.7	56.0	61.5	56.98		39.576	30.234	63.5	63.9
	6	γ Aquilæ	31.4	42.7	53 9	5.0	16.1	27.1	38.4	19 38 4.94	331 23 53.3	51.4	55.8	59.8	55.08		37.450	30.228	63.5	62.5
	7	α Aquilæ	51.8	3.0	14.0	25.0	36.3	47.4	58.4	19 42 25.13	329 36 2.5	3.0	0.8	7.5	3.45		39.815			62.2
	8	β Aquilæ	20.9	31.9	43.0	54.0	5.0	16.0	27.1	19 46 53.99	327 9 30.2	34.2	32.4	39.9	34.18		40.002	30.228	63.5	61.9
	9	α² Capricorni	7.1	8.2	29.2	40.4	52.3	3.4	14.6	20 8 40.74	308 5 52.0	54.0	55.9	61.4	55.83		42.840	30.228	63.5	61.2
	†10	α Cephei	49.4	12.6	36.1	59.3	22.8	46.2	9.3	21 13 59.39	23 2 55.3	52.4	53.0	58.7	54.85		41.208	30.236	63.2	56.4
	†11	β Cephei	--	39.2	11.8	43 2	15.4	47.0	19.0	21 25 59.27										
	12	ε Pegasi	13.6	25.0	36.0	47.0	58.3	9.3	20.4	21 35 47.09	330 17 56.8	59.8	58.8	62.7	59.53		41.250	30.228	63.0	56.7
	13	Neptune	52.4	3.8	15.0	26.2	37.4	48.4	59.7	22 16 26.13	309 41 56.8	57.2	61.0	63.7	59.68		41.861	30.226	62.0	53.9
	14	σ Aquarii	6.5	17.9	29.0	40.2	51.5	2.7	13.7	22 21 40.21							38.565	30.222	62.0	53.8
	15	ζ Pegasi	23.7	35.1	46.4	57.3	8.4	19.5	30.5	22 32 57.27	331 8 57.3	59.8	56.5	64.9	59.63		42.220	30.228	61.5	53.5
	16	λ Aquarii	11.8	23.2	34.2	45.2	56.4	7.3	18.3	22 43 45.20										
	†17	Moon, 1st and S. L.	21.0	32.3	43.4	54.8	6.3	17.3	28.4	23 15 54.79	314 3 31.9	35.3	34.3	41.9	35.85		40.129	30.230	61.5	51.9
	18	γ Cephei	54.5	43.0	30.9	18.4	6.6	54.8	43.0	23 32 18.74										
	†19	20 Piscium	--	--	1.4	12.3	23.5	34.4	45.0	23 39 23.32										
	†20	27 Piscium	25.0	36.2	47.1	57.5	9.0	19.9	30.9	23 49 57.94	316 45 0.4	3.4	5.4	8.8	4.50		38.595	30.230	59.0	50.8
30	21	β Aquarii	1.5	12 4	24.1	34.0	45.8	57.0	7.9	21 22 34.67										
	22	ε Pegasi	11.3	22.2	33.5	44.4	55.9	6.9	17.9	21 35 44.59										
Nov. 1	23	α Bootis	7.5	19.2	31.0	42.6	54.4	6.0	17.3	14 7 42.57										
2	†24	Sun, 1st L.	20.4	32.0	43.1	54.3	5.9	17.0	28.7	14 28 54.49										
	†25	Sun, 2d L.	34.4	46.0	57.0	8.7	20.0	31.3	43.0	14 31 8.63										
	†26	α Aquilæ	49.4	0.4	11.5	22.3	33.4	44.5	55.5	19 42 22.43										
	27	α Bootis	7.5	19.1	30.6	42.5	54.1	5.9	17.8	14 7 42.50										
3	†28	Sun, 1st L.	16.7	28.0	39.7	50.9	2.4	13.7	25.1	14 32 50.93										
	†29	Sun, 2d L.	30.9	42.4	54.0	5.4	16.4	28.0	39.2	14 35 5.19										
	†30	α Cephei	46.5	9.4	33.0	56.2	19.3	42.8	6.2	21 13 56.20										
	31	β Aquarii	1.0	12.3	23.4	34.4	45.3	56.3	7 4	21 22 34.30										
	32	ε Pegasi	10.9	22.0	33.0	44.2	55.4	6.5	17.3	21 35 44.19	330 17 51.0	53.3	51.0	58.7	53.50		41.445	30.092	60.0	60.8
	33	α Aquarii	--	--	48.8	59.7	10.8	21.4	32.6	21 56 10.66	320 2 58.7	63.6	61.9	69.8	63.50		42.815	30.094	60.0	59.5
	34	Neptune	37.9	49.2	0.3	11.8	22.7	33.9	45.0	22 16 11.54	309 41 56.5	58.4	60.8	65 9	60.40		40.018	30.096	60.0	58.5
	35	ζ Pegasi	20.9	32.0	43.0	54.4	5.3	16.4	27.5	22 32 54.21	331 8 55.8	57.1	53.8	61.7	57.10		42.291	30.096	60.0	57.5
	36	α Piscis Australis	37.9	50.4	3.2	16.0	29.0	41.4	54.1	22 48 16.00	290 41 60.9	59.5	63.3	66.3	62.50		43.487	30.092	60.0	57.3
	37	α Ursæ Majoris, S. P.	5.0	28.9	52.5	16.7	40.0	4.1	28.0	22 53 16.46										
4	†38	Polaris, S. P.	50.0	43.5	43.0	39.5	40.0	39.0	38.0	13 4 41.86										
5	39	Sun, 1st L.	11.4	22.7	34.4	45.5	56.7	8.4	19.0	14 40 45.44										
	40	Sun, 2d L.	25.9	37.5	49.0	0.3	11.9	23.5	34.9	14 43 0.43										
	41	β Ursæ Minoris	55.5	37.4	19.0	0.5	42.9	24.2	6.4	14 50 0.84										
	42	α Ophiuchi	17.4	28.6	39.9	51.0	2.4	13.5	25.0	17 26 51.11										
	43	Neptune	34.4	--	57.2	8.2	19.4	30.5	41.8	22 16 11.92	309 41 55.6	57.9	60.2	63.0	59.18		39.705	30.114	63.8	59.7
	44	ζ Pegasi	19.7	30.8	41.8	53.1	4.1	15.3	26.4	22 32 53.03	331 8 58.5	61.9	59.4	65.7	61.38		42.105	30.118	63.9	58.8
	45	α Piscis Australis	36.9	49.4	2.3	15.0	27.5	40.4	53.2	22 48 14.96	290 41 58.5	57.5	61.7	63.0	60.18		43.482	30.122		58.5
	46	α Pegasi	37.9	49.4	0.5	11.9	23.4	34.5	45.9	22 56 11.93	335 33 2.9	6.9	3.8	9.1	5.68		36.570	30.120	64.0	57.8
	47	α Andromedæ	56.2	8.7	21.0	33.5	46.0	58.4	10.9	23 59 33.53	349 24 1.4	3.0	2.5	7.1	3.50		37.492	30.120	63.0	55.9
	48	γ Pegasi	51.7	3.0	14.4	25.7	37.0	48.3	59.5	0 4 25.66										
	49	Saturn, 1st and S. L.	24.5	--	46.4	--	8.5	--	30.3	0 9 57.42	319 30 0.8	0.5	1.3	8.0	2.65		38.397	30.120	63.0	55.7
	50	Saturn, 2d and N. L.	--	36.5	--	58.8	--	20.5	--	0 9 58.60							38.928			
	†51	α Cassiopeiæ	59.5	18.5	38.5	57.6	17.3	36.5	55.9	0 30 57.69	16 47 60.8	59.4	60.7	66.3	61.80		42.073	30.120	63.0	55.2

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c.	Error of runs.	Mic. coin. At.	Mic. coin.
h	s.	s.	s.	s.	s.	s.	h.	revs.
Oct 27, 20	s 61.939	l .009	— .326	— .021	— .258			
30, 22	64.413	.016						
Nov. 2, 20	64.512	.008						
3, 22	64.754	.014						
5, 23	65.859	.029						
7. 21	67.490	.029						

1 rev. = 34″.515.

COR. IN R. A.		COR. IN DEC.		Corrected Readings.	Mic Zero.	OBSERVED		REDUCTION TO 1850.0		NADIR POINT.				
Inst.	Clock.	Inst.	Object.			R. A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean.
s.	s.	′ ″	′ ″	° ′ ″	*Rev.*	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
.60	+ 61.78					22 57 17.28	+ 14 24	+ 0.19						
1.47	61.78					23 33 19.67	76 48	— 5.41						
0.68	61.93	— 1 3.82	— 0.25	359 45 37.55	40.398	18 31 50.02	38 39 16.80	+ 1.51	— 22.38					
.60	61.93	57.88	26.92	334 45 20.42	40.398	18 58 29.34	+ 13 38 59.67	1.53	16.33					
.58	61.93	28.37	41.57	323 55 47.04		19 17 54.36	2 49 26.29	1.53	12.35		Nov.	3,	23.3*h*	
.59	61.94	1 41.75	31.25	331 21 42.07		19 38 6.29	10 15 21.32	1.33	13.80	3.0	3.7	2.9	5.3	3.72
.59	61.94	20.12	33.61	329 35 9.72		19 43 26.48	8 28 48.97	1.33	13.01	3.9	3.4	2.9	4.7	3.73
.59	61.94	— 13.67	36.99	327 9 34.18		19 47 55.34	+ 6 2 22.77	1.33	12.20	3.9	3.7	2.8	5.4	3.95
.59	61.94	+ 1 24.29	— 1 13.01	308 6 7.11		20 9 42.09	— 13 0 13.64	+ 1.44	4.65					
.92	61.95	27.96	+ 24.66	23 3 47.47		21 15 0.42	+ 61 57 26.72	— 0.75	19.19	3.60	3.60	2.87	5.13	3.80
17.13	61.95					21 26 44.09		— 1.75			Mic	40.306	—10	rdgs.
.59	61.95	29.41	— 33.01	330 17 55.93		21 36 48.45	+ 9 11 35.18	+ 0.67	— 7.90					
.58	61.96	+ 50.50	1 9.74	309 41 40.44		22 17 27.51	— 11 24 40.31							
.58	61.96	— 1 3.27	1 10.05	309 39 46.37		22 22 41.59	— 11 26 34.38	0.68	+ 0.57					
.59	61.96	+ 1 2.89	32.07	331 9 30.45		22 33 58.64	+ 10 3 9.70	0.38	— 5.20					
.58	61.96					22 44 46.58	— 8 23	+ 0.54						
.60	61.97					23 18 0.87	— 6 7 35.49							
1.47	61.97					23 33 19.24	+ 76 48	— 5.35			Nov.	5,	23.5*h*	
11.57	61.97					23 40 13.72	— 3 36	+ 0.25		61.0	61.1	59.4	61.2	60.67
.58	61.97	— 1 2.23	55.09	316 43 7.18		23 50 59.33	4 23 13.57	0.22	+ 1.56	61.8	61.4	59.7	61.3	61.05
.58	64.40					21 23 38.49	— 6 14	1.00		61.4	61.1	59.3	61.1	60.73
.59	64.41					21 36 48.41	+ 9 11	0.73		61.40	61.20	59.47	61.20	60.82
.61	64.46					14 8 46.42	19 58	2.56						
.59	64.47					14 31 5.44					Mic.	40.369	—15	rdgs.
.59	64.47													
.59	64.51					19 43 26.35	8 28	1.44						
.61	64.64					14 8 46.53	19 58	+ 2.55						
.59	64.65 }					14 35 2.12								
.59	64.65 }													
.92	64.74					21 15 0.02	+ 61 57	— 0.46						
.58	64.74					21 23 38.46	— 6 14	+ 1.06						
.59	64.75	+ 35.52	32.61	330 17 56.41	40.416	21 36 48.35	+ 9 11 35.66	0.79	— 7.80					
11.55	64.75	+ 1 22.80	47.96	320 3 38.34		21 57 3.86	— 1 2 42.41	0.80	3.84					
.58	64.75	— 13.74	1 8.87	309 40 37.79		22 17 15.71	— 11 25 42.96							
.59	64.76	+ 1 4.72	31.69	331 9 30.13		22 33 58.38	+ 10 3 9.38	0.47	— 5.17					
.61	64.76	+ 1 46.00	2 30.90	290 41 17.60		22 49 20.15	— 30 25 3.15	0.81	+ 8.02					
.27	64.77					22 54 21.50	+ 62 33	+ 3.78						
10.40	65.57					13 5 57.83	88 30	— 57.01						
.59	65.62 }					14 42 57.96								
.59	65.62 }													
1.38	65.62					14 51 5.08	74 45	+ 6.31						
.60	65.70					17 27 56.21	+ 12 41	2.10						
4.30	65.84	— 23.75	1 8.74	309 40 26.69	40.393	22 17 13.46	— 11 25 54.06							
.59	65.84	+ 59.09	31.62	331 9 28.85		22 33 58.28	+ 10 3 8.10	0.48	— 5.21					
.61	65.85	+ 1 46.62	2 30.65	290 41 16.15		22 49 20.20	— 30 25 4.60	0.83	+ 8.20					
.60	65.86	— 2 11.95	26.21	335 30 27.52		22 57 17.19	+ 14 24 6.77	+ 0.31	— 5.24					
.63	65.89	1 40.13	10.84	349 22 12.53		23 59 38.79	28 15 51.78	— 0.21	4.66					
.60	65.89					0 5 30.95	+ 14 21	+ 0.02	1.74					
.58	65.89	1 8.89	48.69	319 28 5.07 }		0 11 3.32	— 1 38 6.53							
.58	65.89	— 50.56	48.71	319 28 23.38 }										
.82	+ 65.90	+ 57.99	— 17.49	16 49 17.30		0 32 2.81	+ 55 42 56.55	— 1.39	— 5.06					

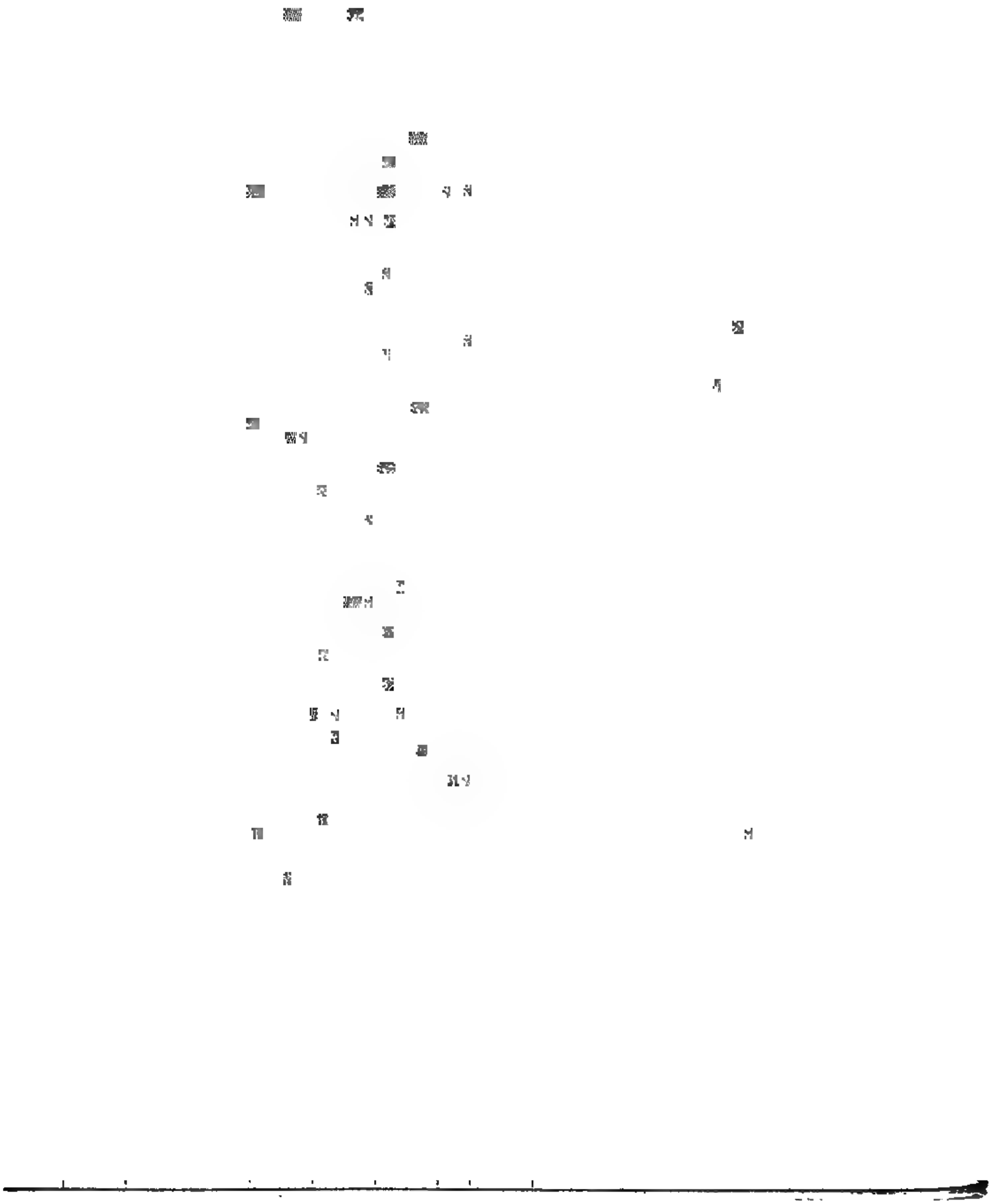
)bject.	COR. IN R. A.	Observed Semi-diam.	
	Semi-diam.	Hor.	Vertical.
	m. s.	m. s.	′ ″
oon -	+ 1 4.77		
ın -	- - - - -	1 7.07	
ın -	- - - - -	1 7.13	
m -	- - - - -	1 7.49	
ıturn -	- - - - -	.59	9.15

10, 20, 24, 25, 28, 29, 30, 38, 51. Unsteady.
10, 20. Misty.
11. Observed for dec. at 26*m*. 5*s*.
21, 26. Through clouds.

COR. IN R. A.		COR. IN DEC.		Corrected readings.	Mic. Zero.	OBSERVED.		REDUCTION TO 1850.0		NADIR POINT.				
Inst.	Clock.	Inst.	Object.			R.A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean.
s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
− 0.59	+ 70.62	+ 30.53	− 1 40.45	299 27 53.68	39.612	21 48 11.34	+ 21 28 27.07	+ 1.34	+ 4.28					
.59	70.62	1 59.76	− 1 40.35	299 39 23.01	39.612	21 49 55.33	− 21 26 57.74	1.32	4.35		Nov.	19.	14h.5	
.59	70.63					22 33 58.25	+ 10 3	0.67		1.4	0 6	0.5	0.8	0.82
.64	70.63					22 49 20.13	− 30 25	1.04		0.8	0.8	0.2	1.7	0.88
.60	70.63					22 57 17.00	+ 14 24	+ 0.49						
										1.16	0.70	0.35	1.25	0.85
24.95	70.64					23 33 17.56	76 48	− 3.76						
.82	70.65					0 32 2.72	55 43	1.17						
		− 5.93	+ 1 8.21	49 37 4.08							Mic.	39.584	−10	rdgs.
		6.68	1 8.21	3.33										
		6.82	1 8.22	3.20										
		5.98	1 8.24	4.06										
− 11.06	70.65	5.49	1 8.24	4.55		1 5 50.83	88 30 43.38	51.56	− 5.39					
		5.49	1 8.27	4.58										
		6.08	1 8.29	4.01										
		− 4.92	1 8.34	5.22										
		+ 1 24.35	1 15.13	52 34 40.78							Dec.	5,	22h.7	
		1 24.40	1 15.12	40.98						61.6	64.0	55.6	59.1	60.07
		1 25.62	1 15.11	42.36						61.9	63.6	55.5	58.2	59.80
		1 25.38	1 15.09	42.27						61.8	64.2	55.7	59.5	60.30
+ 10.41	70.84	1 25.20	1 15.07	42.23	39.609	13 5 53.04	88 30 38.97	− 51.29	5.54	61.77	63.93	55.60	58.93	60.06
		1 24.78	1 15.04	41.94										
		1 24.23	1 15.00	41.52							Mic.	39.262	−10	rdgs.
		1 24.06	1 14.97	41.49										
		1 24.87	1 14.94	42.43										
− .75	70.85	1 6.11	+ 11.32	11 10 16.08		13 41 34.36	50 3 55.33	+ 3.05	3.32					
.61	70.85	+ 57.17	− 20.55	340 15 42.24		13 47 30.25	+ 19 9 21.49	+ 2.26	− 9.90					
		− 1 0.19	1 4.08	309 48 58.18		14 8 19.78	− 11 17 15.95							
.59	70.85	− 0 47.04	1 3.95	309 49 11.46										
.59	70.86	+14 51.19	1 24.79	301 34 30.85		15 44 15.97	− 19 47 59.14							
.59	70.86	−17 25.39	1 26.70	301 2 12.36										
.71	71.55					0 0 38.67	+ 28 16	− 0.04						
.84	71.55					0 5 30.75	14 21	+ 0.16						
− .62	71.55					0 32 2.62	55 43	− 1.13						
+ .07	75.26					0 0 38.53	28 16	+ 0.07						
− .18	75.26					0 5 30.78	14 21	+ 0.25						
+ .89	75.26					0 32 2.42	55 43	− 0.97						
33.81	75.26					1 5 45.78	88 31	− 46.75						
+ .07	75.44					0 0 38.57	28 16	+ 0.09						
− .18	75.44					0 5 30.55	14 21	0.27						
13.65	76.63					18 31 49.48	38 39	2.08						
.11	76.65					19 43 26.03	8 29	1.79						
.10	76.67					21 36 47.88	+ 9 11	1.21						
1.01	76.67					21 58 42.87	− 47 41	2.09						
− .57	76.68					22 49 19.71	− 20 25	1.29						
+ .18	76.70					0 0 38.38	+ 28 16	+ 0.14						
− .04	76.70													
− 11.01	76.70					0 8 19.38								
+ 1.12	+ 76.71					0 32 2.24	+ 55 43	− .83						
		+ 11.85	1 9.43	310 23 2.47	39.263									
		11.80	1 9.46	2.52										
		+ 11.90	− 1 9.48	2.73										

Object	COR. IN R.A	Observed semi-diam.	
	Semi-diam.	Hor.	Vert.
	m. s.	m. s.	′ ″
Venus	— .38	- - - -	6.64
Sun	- - - -	1 9.16	16 9.24
Saturn	- - - -	.59	

1. Observed for dec. at 47*m.* 40*s.*
2. Observed for dec. at 48*m.* 24*s.*
3, 7, 27, 29, 30, 45, 46. Very unsteady.
4, 16 to 24 A little unsteady.
8 to 15. Observed for dec. at 51*m.* 2*s.*, 54*m.* 23*s.*, 57*m.* 58*s.*, 1*m.* 28*s.*, 4*m* 59*s.*, 8*m.* 55*s.*, 12*m.* 5*s.*, and 15*m.* 25*s.*
13 to 15. Very faint; through thin cloud.
16 to 24. Observed for dec. at 57*m.* 51*s.*, 59*m* 52*s.*, 2*m.* 57*s.*, 4*m.* 15*s.*, 6*m.* 0*s*, 7*m.* 24*s*, 8*m.* 37*s.*, 10*m.* 10*s.*, and 11*m.* 43*s.*
17 to 23, 50, 51. Circle readings interpolated.
28. + 0″.12 applied for defective illumination.
43 to 51. Blurred, distended.
49 to 51. Observed for dec. at 53*m.* 27*s.*, 57*m.* 3*s.*, 0*m.* 29*s.*



No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED. R. A.	OBSERVED. DEC.	REDUCTION TO 1850.0. R. A.	REDUCTION TO 1850.0. DEC.	NADIR POINT. A.	NADIR POINT. B.	NADIR POINT. C.	NADIR POINT. D.	NADIR POINT. Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	+ 33.99	+ 76.71	+ 9.70	− 1 9.53	0.62		1 5 45.84	+ 88 30 37.50	− 42.51	− 9.88					
2			9.85	1 9.54	0.89							Dec.	11.	22. 5h.	
3			10.68	1 9.58	1.82						62.0	64.5	56.4	59.1	60.50
4			9.97	1 9.61	1.21						63.0	65.0	58.4	60.4	61.70
5	.57	77.38					18 31 49.25	38 39	+ 2.10						
6	+ .16	77.40					19 43 26.1[illegible]	+ 8 29	1.81		62.50	64.75	57.40	59.76	61.10
7	− .56	77.43					21 58 43.08	− 47 41	2.14						
8	− .22	77.44					22 49 19.86	− 30 25	+ 1.33			Mic.	39.338	—10	rdgs.
9	+ 29.24	77.46					1 5 41.49	+ 88 31	− 41.06						
10	− .02	77.47					1 16 31.34	− 8 58	+ 0.16			Dec.	11.	4. 8h.	
11	10.95	80.11					22 33 57.90	+ 10 3	0.98		64.5	67.4	59.4	61.5	63.20
12	− .22	80.12					22 49 19.77	− 30 25	1.40		66.6	68.9	60.9	62.4	64.70
13	+ .22	80.13					22 57 16.58	+ 14 24	0.80						
14	.39	80.18					0 0 38.17	28 16	+ 0.25		65.55	68.15	60.15	61.95	63.95
15	29.24	80.18					1 5 39.85	88 31	− 38.49						
16	.24	80.40	26.17	43.96	22 41 36.26	39.302	4 27 19.65	16 12 2.99	0.55	+ 6.94		Mic.	39.187	—10	rdgs.
17	+ .40	80.43	11.53	− 1 54.72	10 25 15.76		5 16 49.40	+ 28 28 23.49	0.63	+ 7.62					
18	− .26	80.45					5 34 14.12	− 34 9	1.03			Dec.	17.	4. 3h.	
19	+ .14	80 46					5 47 3.63	+ 7 22	− 0.53		58.5	61.2	58.1	59.8	59.40
20	+ .34	80.46	2 18.96	+ 18.17	12 35 37.40		5 54 14.23	+ 26 18 1.85			58.2	61.3	57.5	60.1	59.72
21	− .32	86.99					22 49 19.54	− 30 25	+ 1.46						
22	+ .18	86.99					22 57 16.61	+ 14 24	0.85		58.35	61.2	57.80	59.95	59.34
23	3.35	87.01					23 33 15.09								
24	.37	87.00					0 0 38.08	28 16	0.31			Mic-	39.717	—10	rdgs.
25	+ .18	87.03					0 5 30.58	14 21	0.45						
26	− .02	87.03					0 8 50.70					Dec.	27.	0. 5h.	
27	+ .06	87.03													
28	11 5.78	87.07					1 5 34.48	88 31	− 34.34		59.5	63.8	59.7	62.8	61.45
29	.75	87.22					5 5 37.81	45 50	− 1.03		60.5	64.0	60.0	62.2	61.68
30	.34	87.24	1 54.37	+ 17,92		39.702	5 43 43.61	26 27 27.73			60.0	63.90	59.85	62.50	61.56
31	.57	87.69					18 31 49.36	38 39	+ 2.11						
32	.71	87.76					20 36 17.57	44 45	1.55			Mic	39.582	— 5	rdgs.
33	.07	30.62					20 32 13.29	4 49	0.80						
34	.37	30.64					0 0 38.20	28 16	0.38						
35	+ .18	30.64					0 5 30.46	14 21	0.51						
36	− .02	30.64					0 9 13.84								
37	.00	30.64													
38	+ .18	32.43					0 5 30.41	14 21	+ 0.56						
39	1.09	32.44					0 32 1.82	55 43	− 0.30						
40	+ 4 3.50	32.45					1 5 29.45	+ 88 31	− 28.70						
41	− .09	32.45					1 16 31.36	− 8 58	− 0.21						
42	+ .07	32.46					1 22 19.82	+ 5 22	+ 0.21						
43	.06	32.46					1 33 37.86	4 43	+ 0.15						
44	+ .09	32.47					2 0 7.23								
45	− 10.96	32.48					2 20 11.56	7 47	− 0.11						
46	+ 3.35	33.78					23 33 13.94	76 48	+ 4.44						
47	.37	33.80	11.32	1 14.55	10 37 52 92	39.627	0 0 37.97	28 15 46.33	+ 0.48	− 4.79					
48			7.55	1 11.23	310 22 53 12										
49			7.76	1 11.23	53.33										
50			7.81	1 11.23	53.38										
51			8.71	1 11.24	54.27										
52	+ 31 62	+ 33.80	+ 9.75	+ 1 11.24	55.31		1 5 28.06	+ 88 30 44.63	− 26.61	− 13.80					

No.	Object.	COR. IN R. A. Semi-diam.	Observed semi-diam. Hor.	Observed semi-diam. Vert.
		m. s.	m. s.	′ ″
20	Mars -	+ .56		
26	Saturn -		.56	
30	Mars -	+ .57		
36	Saturn -		.54	
44	Moon -	+ 1 6.78		

1 to 4. Blurred, distended. Observed for declination at 4m. 2s., 7m. 20s., 11m. 6s., and 14m. 46s.

1 to 3. Circle readings interpolated.

5, 9, 15, 17, 30, 38, 39. Very unsteady.

8. Observed with full aperture; too bright; observation not very good.

45. Through a passing cloud

48 to 52. Observed for declination at 58m. 28s., 1m. 37s., 3m. 0s., 4m. 14s., and 5m. 25s.

No. for ref.	COR. IN R A. Inst.	COR. IN R A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	NADIR POINT. B.	NADIR POINT. C.	NADIR POINT. D.	NADIR POINT. Mean.
	s	s.	′ ″	′ ″	° ′ ″	*Revs.*	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1			+ 10.31	— 1 11 23	55.88										
2			10.11	1 11.37	55.68										
3			9.11	1 11.37	54.54										
4			10.63	— 1 11.[illegible]	56.05										
5	+ .09	+ 33.86	+ 1 29.77	+ 36.79	30 59 9.56	39.627	2 47 40.64	+ 7 54 29.69	— 0.22	+ 7.13		Dec.	27.	3.5*h*.	
6	+ .85	33.87	— 1 31.12	— 11.31	349 34 21.34		3 13 39.39	+ 49 19 17.90	0.98	— 0.68	60.9	63.7	58.8	62.2	61.40
7	— .13	33.88					3 51 2 44	— 13 57	0.46		60.0	63.9	59.2	62.8	61.48
8	+ .19	33.89	1 21.52	+ 26.96	23 38 3.34		4 11 16.17	+ 15 15 35.91	0.56	+ 7.14	60.45	63.80	59.00	62.50	61.44
9	.18	33.90	56.92	25.78	22 41 29 91		4 27 19.59	16 12 9.34	0.61	7.30					
10	.27	33.91	— 1 53.97	+ 19.44	17 31 28.39		4 54 8.79	21 22 10.86	0.69	+ 7.09		Mic.	39.585	— 5	rdgs.
11	.22	33.91	+ 15.01	—38 29.00	20 56 7.70		5 1 11.26	17 57 31.55							
12	+ .38	33.92					5 16 49.51	28 28	0.77						
13	— 5.77	33.92					5 27 10.92								
14	+ .09	33.93					5 47 3.81	7 22	0.70						
15	.05	36.56					2 54 26.80	3 30	0.21						
16	.85	36.57					3 13 39.11	49.19	0.95						
17	+ .30	36.58					3 38 35.11	+ 23 38	0.54						
18	— .13	+ 36.59					3 51 2.45	— 13.57	— 0.46						

No.	Object.	COR. IN R A Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
11	Moon .	+ 1 13.17		
13	Mars .	+ .55		

1 to 4. Observed for declination at 7*m.* 1*s.*, 8*m.* 46*s.*, 10*m.* 10*s*, and 12*m.* 34*s.*
6, 8, 9, 11, 13 to 18. Very unsteady.
11. Observed for declination at 1*m.* 57*s.*

OBSERVATIONS

WITH

THE MERIDIAN CIRCLE,

1850.

NATIONAL OBSERVATORY.

No. for ref.	COR. IN R.A. Inst.	COR. IN R.A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	NADIR POINT. B.	NADIR POINT. C.	NADIR POINT. D.	NADIR POINT. Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	+ 0.23	− 18.53					18 31 49.59	+ 38 38	+ 2.00			Jan.	12.	2.5*h*.	
2	− .51	18.52					19 5 32.46	− 22 36			2.4	5.4	0.5	1.6	2.48
3	− .51	18.52									2.3	5.9	1.0	2.0	2.80
4	+ .08	18.42					0 0 37.89	+ 28 15	0.60		2.9	5.9	1.0	2.5	3.07
5	− .13	18.42					0 5 30.25	14 20	+ 0.69						
6	− .11	− 18.32					4 27 19.60	16 12	− .59		2.53	5.73	0.83	2.40	2.78
7	+ .49	+ 41.92					3 13 38.90	49 19	.79						
8	− 5.99	42.05					3 38 34.81	+ 23 38	.45			Mic.	39.404,	—10	rdgs.
9	.37	42.44					5 7 20.55	− 8 23	.69						
10	.29	42.58					5 27 36.92	− 1.18	.73						
11	.21	42.66					5 46 3.86	+ 7 22	.75						
12	.44	42.91					6 37 33.53	− 16 31	.99						
13	.57	42.99					6 52 45.13	28 46	1.23						
14	18.25	51.98					10 36 4.12	− 21 21							
15	.50	+ 51.98										Jan.	19.		
16	13 37.43	− 8.87					1 5 13.93	+ 88 30	− 13.16		60.2	62.7	59.0	61.2	60.78
17	.02	8.85	+ 2 26.58	+ 17.01	16 8 40.76	39.486	1 58 43.60	22 44 58.49	+ .07	+ 1.72	60.4	62.1	61.7	61.1	61.32
18	− .24	8.82	− 51.04	+ 41.92	35 23 53.48		2 54 26.63	3 29 45.77	− .09	+ 9.67	60.30	62.40	60.35	61.15	61.05
19	+ .49	− 8.81	− 1 36.80	− 10.89	349 34 15.11		3 13 38.99	49 19 24.14	.73	− 3.57					
20	− .11								.57			Mic.	39.264	—10	rdgs.
21	5.98	+ 56.97					3 37 34.95	+ 23 38	.60						
22	.42	56.99					3 51 2.21	− 13 56	.40						
23	− .11	57.05					4 27 19.73	+ 16 12	.54						
24	+ .02	57.10					5 3 5.62	+ 26 17	.75						
25	− 6.08	57.11					5 9 21.32								
26	− 6.08	57.11													
27	+ 1.54	57.15					5 24 21.21	− 0 25	.70						
28	+ 5.20	+ 57.15					5 28 36.95	− 1 18	− .71			Jan.	22,	5 7*h*.	
29	− .12	− 3.96					17 7 47.12	+ 14 33	+ 1.44		59.4	61.9	57.2	60.9	59.85
30	11.38	3.95					17 28 56.79	12 40	1.50		59.2	61.9	57.0	61.9	60.00
31	− 8.23	3.93					17 53 5.45	51 30	2.08		59.8	61.8	57.5	61.4	60.12
32	+ .23	3.92					18 31 49.72	+ 38 39	+ 1.82		59.47	61.87	57.23	61.40	59.99
33	− .48	3.87					20 6 4.94	− 20 18							
34	− .48	3.87													
35	+ 28.98	3.75					1 5 13.44	+ 88.30	− 6.99			Mic.	39.257	—10	rdgs.
36	− .02	3.73					1 58 43.45	22 45	+ .19						
37	+ .02	3.65	+ 3 41.86	+ 17.40	12 42 58.76	39.294	5 6 28.31	26 10 40.49							
38	− .21	3.63	+ 47.92	+ 37.75	31 31 23.49		5 47 3.79	7 22 15.76	− .74	+ 10.71					
39	+ .23	1.98					18 31 49.76	38 38	+ 1.77						
40	− .19	1.97					19 43 26.00	+ 8 28	1.66						
41	.48	1.94					20 18 45.74	− 19 38				Jan.	29,	5.5*h*.	
42	− .48	1.94									58.7	61.8	58.0	60.4	59.72
43	+ .36	1.93					20 36 17.39	+ 44 45	+ 1.78		58.2	61.6	58.8	60.8	59.85
44	+ .05	1.74					5 16 49.50	+ 28 28	− 0.73		59.0	61.9	58.6	59.9	59.85
45	− .29	1.74					5 24 21.37	− 0 25	− 0.66						
46	+ .23	− 1.39					18 31 49.77	+ 38 38	+ 1.75		58.63	61.77	58.46	60.33	59.81
47	+ 7 32.26	− 1.25					1 5 6.51	88 30	− 3.85			Mic.	39.290	—10	rdgs.
48	− .19	+ 5.27					19 43 26.27	8 28	+ 1.54						
49	+ .36	5.30					20 36 17.30	44 45	1.72						
50	28.98	+ 5.12					1 4 58.10	88 30	+ 1.10						
51	+ .02	.02	+ 1 28.40	+ 17.08	12 49 42.43	39.284	5 7	+ 26 3 56.82							
52	− 4.05	+ .02													

No.	Object.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
2	Sun - -		1 10.70	
14	Sun - -		1 10.17	
25	Mars - -		0.39	
33	Sun - -		1 9.62	
37	Mars - -	+ 0.45		
41	Sun - -		1 9.37	
50	Mars - -		0.43	

2, 6, 14, 25, 33, 37, 46. Unsteady. 37. Well defined.
47. At wires VI and VII, clouded.

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	NADIR POINT. B.	NADIR POINT. C.	NADIR POINT. D.	NADIR POINT. Mean.
	s.	s.	′ ″	′ ″	° ′ ″	*Revs.*	h. m. s.	° ′ ″	s.	″					° ′
1	— 0.25	+ 8.33					2 35 31.54	+ 2 35	+ .36			Feb	11,	7*h*.	
2	— .24	8.33					2 54 26.13	3 29	+ .25		59.3	63.5	58.6	59.8	60.30
3	+ .49	8.34					3 13 38.54	49 19	— .18		60.4	63.7	59.5	61.7	61.32
4	— .01	8.35					3 35 58.65	23 38	.08						
5	.01	8.35					3 38 34.57	23 38	.09		59.85	63.60	59.05	60.75	60.81
6	.01	9.96					3 35 58.64	23 38	.04						
7	11.95	9.96					3 37 26.01	23 39	.04			Mic	39.280	—5	rdgs.
8	5.98	9.96					3 38 44.63	+ 23 38	— .05						
9	.42	9.97					3 51 1.86	— 13 56	+ .03						
10	.19						19 43	+ 8 28							
11	.21	41.45	— 2 11.72	+ 36.92	31 31 23.62	39.304	5 46 3.68	7 22 15.63	— .55	+ 11.84		Feb	16,	4*h*.	
12	.03	41.46	+ 18.38	17.65	16 18 39.70		6 13 53.78	+ 22 34 59.55	.69	7.81	59.2	62.8	58.4	60.8	60.30
13	.44	41.51	— 44.53	1 27.35	55 24 45.94		6 38 33.24	— 16 31 6.69	.85	17.01	59.4	62.8	58.7	61.9	60.70
14	.57	41.54	1 19.91	2 25.83	67 40 14.87		6 53 44.93	28 46 35.62	1.07	+ 18.23					
15	.29	12.45					5 24 21.15	0 25	.40		59.30	62.80	58.55	61.35	60.50
16	5.76	12.45					5 28 36.52	— 1 18	.42						
17	.22	12.46					5 46 8.7[illegible]	+ 7 22	.51			Mic.	39.472	—5	rdgs.
18	.42	12.87					3 51 1.76	— 13 57	.18						
19	— 22.95	12.88					4 27 19.03	+ 16 12	.11						
20	+ .39	12.88					5 5 37.48	45 50	— .51						
21		12.89	— 1 57.87	+ 16.49	12 52 20.55	39.487	5 20	26 1 18.70				Feb.	23,	4.5*h*.	
22	17.63	12.90					6 20 30.86	86 35	+ 11.72		59.2	61.0	56.4	59.0	58.90
23	+ 17.63	33.82					6 20 33.68	86 35	11.72		59.6	60.5	56.3	58.0	58.60
24	— 1 0.93	33.81					6 28 50.03	+ 87 15	+ 14.61						
25	.57	12.90					6 52 44.74	— 28 47	— 0.99		59.40	60.75	56.35	58.50	58.75
26	5.72	33.67					8 38 50.68	+ 6 58	1.01						
27	.36	33.63					9 20 14.14	— 8 1	1.17			Mic.	39.497	—10	rdgs.
28	.00	33.61					9 37 20.87	+ 24 27	1.04						
29	.15	33.59					10 0 23.73	+ 12 41	1.05						
30	.37	31.91					5 7 20.13	— 8 23	.19						
31	.29	31.84					5 24 21.11	0 25	.29			Feb	23,	7.7*h*	
32	.46	31.84					5 25 7.10	— 17 56	.32		62.8	63.4	57.9	59.8	60.97
33	.03	31.65					6 13 53.86	+ 22 35	.56		63.2	64.7	59.3	61.5	62.18
34	11.52	31.60					6 29 3.50	+ 16 33	.61		63.7	64.9	60.0	62.8	62.85
35	.44	31.56					6 38 32.98	— 16 31	.72						
36	2.66	31.52					6 52 44.61	— 28 46	.92		63.23	64.33	59.07	61.37	62.00
37	.03	31.44					7 11 10.59	+ 22 15	.78						
38	6.03	31.43					7 13 41.67	19 12				Mic.	39.262	—10	rdgs.
39	— .00	31.36					7 35 24.26	24 45	.86						
40	+ .39	25.72	+ 24.63	— 7.40	353 3 16.95	39.461	5 5 37.43	45 50 22.30	.36	— 1.04					
41	+ .06	25.67					5 16 49.07	+ 28 28	.30						
42	— .29	25.65	+ 2 59.99	+ 49.81	39 18 46.25	39.391	5 24 20.95	— 0 25 7.00	.28	+ 14.63		Feb	25,	7.6*h*.	
43	7.25	25.62					5 34 13.29	— 34 10	.42		61.5	61.9	58.8	61.3	60.88
44	— .45	25.37					6 38 33.00		.70		61.2	62.5	59.1	60.3	60.77
45	+ .02	25.32	— 42.33	13.03	12 59 32.38	39.356	6 53 11.16	+ 25 54 6.87			60.8	62.9	59.0	60.7	60.85
46	— 17.80	25.24	41.68	18.29	16 38 35.56	39.321	7 11 10.61	22 15 3.69	.77	8.17					
47	.00	25.15	35.78	15.43	14 8 36.67		7 35 24.25	24 45 2.58	.86	7.78	61.17	62.43	58.97	60.77	60 83
48	.10	25.00					8 18 16.41	17 43							
49	.08	24.92	— 34.64	22.57	20 11 44.48		8 36 10.41	18 41 54.77	1.00	9.49		Mic	39.311	—10	rdgs.
50	— .15	24.87	+ 3 21.32	30.52	26 27 48.02		8 50 17.80	12 25 51.23	— 1.03	+ 10.40					
51	+ 22.00	13.21					1 4 38.20	88 30	+ 19.92						
52	+ .04	+ 12.94					1 58 42.84	+ 22 45	+ .74						

No.	Object.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
38	Moon - -	+ 1 12.74		
48	Moon - -	+ 1 12.35		

1, 2. Exceedingly unsteady.

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	NADIR POINT. B.	NADIR POINT. C.	NADIR POINT. D.	NADIR POINT. Mean.
	s.	s.	s.	s	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	— 0.08	+ 11.86	+ 58.38	+ 35.64	31 31 23.47	39.335	5 46 3.56	+ 7 22 15.78	— .36	+ 12.23					
2			+ 24.50	17.07	16 18 37.39		6 13	+ 22 35 1.86		7.45					
3	— 11.66	11.57	— 42.49	1 24.71	55 24 42.80		6 39 32.95	— 16 31 3.35	— .68	+ 18.65					
4	+ .08	} 11.91	+ 1 1.61	15.69	12 52 19.22	39.335	5 31 45.71	+ 26 1 20.03							
5	+ .08														
6	— 11.81	11.42					7 11 10.44	+ 22 15	— .72			Mar.	8, 12*h*.		
7	.29	11.10					8 1 10.47	— 23 53	1.16		61 8	65.4	57.0	60.4	61.15
8	— .32	39.29					6 52 44.54	— 28 46	.72		62.7	65.5	61.4	61.0	62.65
9	+ 6.63	39.39					7 25 1.96	+ 32 12	.72		62.8	67.0	58.8	61.1	62.43
10	— .10	39.41					7 31 27.54	+ 5 36	.71						
11	— .29	39.51					8 1 10.37	— 23 53	— 1.05		62.43	65.97	59.07	60.83	62.08
12	+ 22.00	+ 41.52					1 4 35.52	+ 88 30	+ 24.03						
13	+ .04						1 58	+ 22 45	+ 0.86			Mic.	39.202	—10	rdgs.
14	— .15	— 20.23					5 28 36.28	— 1 18	— 0.07						
15	.36	20.29	24.56	3 11.38	73 3 31.86	39.263	5 34 13.11	— 34 9 52.61	.11	+ 23.96		Mar	11, 9*h*.		
16	.08	20.41	+ 53.73	36.38	31 31 26.76		5 47 3.26	+ 7 22 12.49	— .17	12.37	60.4	62.8	57.2	60.7	60.28
17			— 1 23.07	40.60	305 29 19.78	}					61.1	62.1	56.7	60.0	59.97
18	— 10.08	20.73	1 23.08	41.80	20.97	}	18 20 37.87	+ 86 35 41.14	+ 5.57	11 49	60.8	62.8	57.0	60.0	60.15
19			— 1 23.10	41.28	20.43	}									
20		20.90	+ 2 33.26	1 26.05	55 24 54.71			— 16 31 15.46		19.49	60.77	62.57	56.96	60.23	60.13
21	+ .08	21.04	9.76	1 12 51	12 45 20.02		6 54 24.84	+ 26 8 19.23							
22	— 3.75	23.55										Mic.	39.347	--10	rdgs.
23	0.08	23.55	+ 5.57	58.76	32 48 58.13		11 18 42.61	6 4 41.12							
24	5.70	23.75					11 41 25.39	15 24	— 1.11			Apr.	15,	14.5*h*	
25	4.78	61.56									59.8	61.5	64.7	60.7	61.68
26	6.00	61.56					5 53 49.21	+ 25 57			59.9	60.7	64.0	59.7	61.07
27	— .24	62.01					6 38 32.78	— 16 31	.48						
28	+ .14	62.47					7 25 1.87	+ 32 12	.61		59.85	61.10	64.35	60.20	61.38
29	— .09	62.51					7 31 27.44	5 36	.62						
30	+ .11	62.56					7 36 8.36	+ 28 23	.64			Mic.	39.462	—8	rdgs.
31	— 5.72	63.58	— 31.13	1 3.59	46 54 32.33	39.351	9 20 14.00	— 8 0 53.08	1.11	13.47					
32	+ .07	63.76	+ 1 49.39	15.35	14 26 1.74		9 37 20.62	+ 24 27 37.51	1.03	7.68					
33	+ 5.59	— 63.97	— 34.39	29.40	26 11 53.19		10 0 23.85	+ 12 41 46.06	1.08	9.59		Apr.	17,	13*h*.	
34	— .19	+ 39.00					9 20 13.74	— 8 0	.86		1.7	3.9	4.8	0.3	2.68
35	17.43	39.00					9 22 48.44	+ 52 21	.84		3.2	4.6	7.0	0.8	3.90
36	5.86	39.13					11 11 51.82	— 13 58	1.34		2.45	4.25	5.90	0.55	3.29
37	0.02	39.17					11 41 25.37	+ 15 24	1.18						
38	8.87	39.18					11 45 56.40	+ 54 31	1.50			Mic.	39.189	—10	rdgs.
39	— .28	39.22					12 26 32.57	— 22 34	— 1.61						
40	+13 41.33	39.24					13 4 31.30	+ 88 30	+ 31.01						
41	— 17.08	2.78					11 41 25.40	15 24	— 1.12						
42	27.78	2.80					11 45 56.19	+ 54 31	1.38						
43	12.14	2.96	+ 4 58.35	+ 1 49.88	61 27 48.13	39.502	12 26 32.69	— 22 34 8.88	— 1.61	9.59					
44			— 1 23.86	— 1 16.62	307 24 11.97	}									
45			1 25.12	1 16.63	10.87	}									
46			1 24.37	1 16.64	11.78	}									
47			1 26.11	1 16.65	10.20	}									
48	— 22.60	+ 3.11	1 27.07	1 16.65	9.40	}	13 4 30.94	+ 88 30 30.55	+ 30.16	+ 5.16					
49			1 27.68	1 16.64	8.97	}									
50			1 28.94	1 16.64	7.88	}									
51			1 28.19	1 16.63	8.81	}									
52			— 1 28.86	— 1 16.63	8.31	}									

No.	Object.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
3	Jupiter .	- - - - -	1.42	20.40
4	Mars	- - - - -	0.29	
22	Jupiter .	- - - - -	1.37	
25	Mars .	- - - - -	0.33	

3, 32, 43. Blurred.
9, 12. Very unsteady.
17, 18, 19. Observed for dec. at 18*m*. 9*s*., 21*m*. 14*s*., 24*m*. 19*s*.
33. Poor observation. Lamp went out. Field of view too dark.
44 to 52. Unsteady and a little blurred at first; more steady and better defined at last wires. Observed for declination at 51*m*. 4*s*., 53*m*. 30*s*., 58*m*. 1*s*., 1*m*. 34*s*., 5*m*. 0*s*., 8*m*. 33*s*., 12*m*. 6*s*., 15*m*. 28*s*., 19*m*. 0*s*.
45 to 51. Circle readings interpolated.

No. for ref.	COR. IN R.A. Inst.	COR. IN R.A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED. R. A.	OBSERVED. DEC.	REDUCTION TO 1850.0. R. A.	REDUCTION TO 1850.0. DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″					
1			+ 14.42	— 1 16.63	307 24 1.49	39.420									
2			14.47	1 16.63	1.08										
3	— 22.59	+ 2.62	0 14.46	1 16 63	0.61		1 4 38.92	+ 88 30 21.94	+ 20.99	+ 12.15		May	11,	14.5*h*.	
4			15.90	1 16.63	1.59						58.7	59.7	62.4	56.7	59.38
5	+ .44	2.62	1 53.65	— 11.62	348 49 43.50	39.420	13 41 38.89	50 3 55.75	— 1.54	— 4.94	58.4	59.4	61.3	57.5	59.15
6	.01	2.62	2 10.17	+ 21.14	19 44 35.76		13 47 33.97	19 9 3.49	1.40	+ 0.76	58.55	59.55	61.85	57.10	59.26
7	.02	2.62	4 14.57	20.21	18 55 39.58		14 8 50.63	19 57 59.67	— 1.42	1.10					
8	.02	2.81	2 50.30	14.72	16 15 1.32	39.301	4 36 41 13	22 38 31.91				Mic.	39.442	—10	rdgs.
9			3 2.30	+ 14.76	16 15 13.36										
10	.35	2.81					5 5 35.82	45 50	+ 1.17						
11	— .08	+ 2.82					5 47 2.26	7 22	0.77			May	13,	9*h*.	
12			1 26.57	— 1 15.63	307 24 8.89	39.325					60.0	61.1	60.8	55.2	59.28
13	— 22.57	— 3.16	1 26.58	1 15.65	8.27		13 4 45.06	88 30 29.22	+ 17.10	13.42	60.7	60.8	61.3	54.4	59.30
14			1 27.60	1 15.67	8.66						60.3	60.8	60.6	55.4	59.27
15			1 27.61	— 1 15.68	8.05										
16	+ .44	3.19					13 41 38.94	50 3	— 1.50		60.33	60.90	60.90	55.00	59.28
17	.01	3.20					13 47 33.91	19 9	1.41						
18	.02	3.22	1 25.71	+ 20.02	18 55 42.48		14 8 50.60	19 57 56.77	1.45	0.10		Mic.	39.280	—10	rdgs.
19	+ 1.83	3.26					14 51 15.60	+ 74.46	3.48						
20	— .19	3.27	3 2.53	1 4.33	47 43 10.26		15 8 58.13	— 8 49 31.01	1.78	1.39		May	18,	14.5*h*.	
21	.28	3.29	14.15	1 47.68	61 32 2.90		15 28 1.32	22 38 23.65	2.01	0.96	0.8	0.9	3 0	0.0	1.18
22	— 6.21	3.29	1 9.91	+ 1 47.84	61 32 58.82		15 30 34.25	— 22 39 19.57	2.01	+ 0.81	1.5	1.4	3.7	0.0	1.65
23	+ .44	3.20	1 54.09	— 11.46	348 49 43.38	39.341	13 41 38.88	+ 50 3 55.87	1.48	— 7.17	1.4	1.5	3.5	0.0	1.60
24	— 5.78	3.20					13 47 33.92	19 9	1.39						
25	+ .02	3.18	4 22.36	+ 19.91	18 55 44.02		14 8 50.58	19 57 55.23	1.43	0.37	1.23	1.27	3.40	0.00	1.48
26	.10	3.15	1 54.19	11.56	11 11 4.65		14 38 27.73	+ 27 42 34.60	1.55	— 2.46					
27	+ 11.16	3.15					14 42 37.10	— 15 25	1.83			Mic.	39.282	—10	rdgs.
28	— .28	3.11	14.90	1 47.49	61 32 3.79		15 28 1.50	22 38 24.54	2.02	+ 1.05					
29	— .28	3.11	1 10.39	+ 1 47.56	61 32 56.00		15 30 34.36	— 22 39 16.75	2.02	+ 0.89		May	20,	15*h*.	
30	+ 2.48	3.09	5.25	— 48.04	320 38 19.13		15 49 36.56	+ 78 15 20.12	5.05	— 5.33	59.4	59.3	60 4	56.9	59.00
31	— .16	3.08	4 59.29	+ 53.04	42 11 51.81		16 6 31.01	— 3 18 12.56	— 1.73	— 1.05	58.4	59.2	60.2	56.9	58.68
32			1 9.58	— 1 13.92	307 23 57.44	39.548					58.4	58.9	60.7	57.3	58.82
33			1 9.10	1 13.97	57.10										
34			1 11.27	1 14.01	59.42						58.73	59.13	60.43	57.03	58.83
35			1 11.69	1 14.06	59.99										
36	9.70	5.57	1 9.77	1 14.10	58.22		13 5 54.44	+ 88 30 19.49	+ 6.63	+ 16.01		Mic.	39.375	—15	rdgs.
37			1 10.13	1 14.09	58.47										
38			1 11.36	1 14.09	59.58							June	3,	11.6*h*.	
39			1 11.39	1 14.08	59.50						55.8	63.0	63.2	63.1	61.27
40			1 10.91	—1 14.08	58.90						56.3	63.2	62.1	63.0	61.15
41	— 11.73	5.67	2 28.23	+ 1 51.47	62 55 12.65		14 45 40.09	— 24 1 33.40	— 2.01	4.46	56.3	62.8	62.5	62.9	61.13
42	+ .26	5.69	27.57	2 34.54	69 50 59.91		15 5 28.98	30.57 20.66	2.23	4.07					
43	— 5.27	5.69					15 8 58.19	8 49	1.83		56.13	63.00	62.60	63.00	61.18
44		5.71	+ 1 4.85	1 40.21	60 20 39.74		15 23	21 27 0.49		1.70					
45		5.72	— 1 54.35	+ 1 44.81	61 26 52.78		15 29	— 22 33 13.23		+ 1.42		Mic.	39.511	—20	rdgs.
46	— 25.56	5.74	— 6.78	— 47.03	320 38 16.94		15 49 36.41	+ 78 15 22.31	4.67	— 9.63					
47	+ .28	5.75	+ 1 51.23	+ 52.02	42 11 48.44		16 6 31.24	— 3 18 9.19	1.88	2.11					
48	— 22.02	5.81	5 54.07	— 39.05	325 29 22.47		17 3 38.06	+ 73 24 16.78	4.11	5.10					
49	— 5.49	5.81	55.89	39.20	325 22 32.36		17 4 33.44	73 31 6.89	4.14	5.05					
50	+ .50	5.86	+ 2 13.45	— 12.92	347 23 10.03		17 53 9.79	51 30 29.22	2.34	1.95					
51	+ .40	5.91					18 31 53.48	38 38	— 2.00						
52	— 9.70	— 5.83					13 5 55.83	+ 88.30	+ 5.72						

No.	Object.	COR. IN R.A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
	Venus -	+ 0.37		6.02

1 to 4. Observed for declination at 58*m*. 2*s*., 1*m*. 30*s*., 8*m*. 34*s*., and 12*m*. 5*s*.
2, 3, 13, 14, 33, 34, 35, 37, 38, 39. Circle readings obtained by interpolating.
8. —″.02 applied for defective illumination.
12 to 15. A little unsteady; observed for declination at 2*m*. 59*s*., 5*m*. 13*s*., 7*m*. 0*s*., 8*m*. 43*s*.
16. Poor observation.
17, 18. Very unsteady.
19, 30. Observed by counting beats of armature to electro-magnet.
19. Unsteady. 30. Blurred.
32 to 40. Observed for declination at 51*m*. 20*s*., 54*m*. 50*s*., 58*m*, 16*s*., 2*m*. 0*s*., 5*m* 18*s*., 8*m*. 45*s*, 12*m*. 17*s*., 15*m*. 57*s*., 19*m*. 25*s*.

COR. IN R. A.		COR. IN DEC.		Corrected Readings.	Mic. Zero.	OBSERVED		REDUCTION TO 1850.0		NADIR POINT.				
Inst.	Clock.	Inst.	Object.			R. A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean.
s.	s.	′ ″	′ ″	° ′ ″	*Revs.*	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
+ 0.48	− 5.84					13 41 38.65	+ 50 4	+ 1.25						
− 4.25	5.85					13 57 54.03	− 35 38	1.29						
− 16.62	5.30					13 40 38.78	+ 50 4	1.23	− 10.39		June	3,	18.3*h*	
+ 6.18	5.30	+ 1 58.11	+ 20.37	19 44 30.13	38.347	13 47 33.83	+ 19 9 9.12	− 1.29	3.00	55.5	62.3	59.4	62.1	59.83
.26	5.29	1 26.50	3 21.64	74 33 39.22		13 57 54.06	− 35 39 59.97	1.28	+ 10.14	56.7	62.9	62.4	62.7	61.17
+ .33	5.29	2 0.62	19.47	18 55 41.96		14 8 50.65	+ 19 57 57.29	· 1.35	− 2.85	56.4	63.3	62.8	63.8	61.57
− 5.76	5.28	1 12.93	1 51.99	63 15 5.42		14 34 35.77	− 24 21 26.17	1.96	+ 5.29					
+ .26	5.28	2 21.75	1 50.48	62 55 15.60		14 45 39.91	24 1 36.35	1.99	5.75	56.20	62.83	61.53	62.87	60.86
− 5.90	5.27	28.20	2 6.26	65 56 52.96		14 49 49.25	27 3 13.71	2.07	4.74		Mic.	39.524	−10	rdgs.
+ .28	5.27	27.28	1 2.44	47 43 15.64		15 8 58.24	8 49 36.39	1.82	0.63					
	5.26	4 7.87	1 39.40	60 20 47.59		15 23	21 27 8.34		1.74		June	5.		
	5.26	47.78	1 44.04	61 26 54.54		15 29	22 33 15.29		+ 1.48	0.2	1.4	6.3	5.5	3.35
+ .26	5.24	5.76	+ 2 1.58	64 59 19.49		16 20 15.20	− 26 5 40.24	2.23	− 1.49	0.0	1.9	5.9	6.5	3.57
− 36.94	5.23	+ 0.25	− 38.85	325 44 30.85		16 56 40.55	+ 73 9 8.40	4.01	6.16	0.5	1.4	6.7	6.2	3.70
− 14.34	5.23	−12 0.27	39.14	325 32 30.54		16 59 21.74	73 21 8.71	4.06	5.10					
+ 20.37	5.23	−15 7.00	− 39.23	325 29 23.72		17 3 38.06	73 24 15.53	4.10	− 5.49	0.23	1.57	6.30	6.07	3.54
.31	5.22					17 28 0.27	12 40	1.86			Mic.	38.244	−10	rdgs.
.50	5.21					17 53 9.92	+ 51 30	2.36						
+ .27	5.21					18 4 49.39	− 21 5	2.04			June	10,	17*h*.	
− 3.43	4.17	+ 3 19.39	+ 1 1.83	47 43 18.49	38.268	15 8 58.25	− 6 49 39.24	1.83	+ .44	56.4	57.7	61.8	61.8	59.42
− 3.39	4.19					15 35 54.68	+ 6 54	1.77		56.4	57.2	61.5	62.0	59.28
+ 1.37	4.20	+ 74	− 46.31	320 38 19.63		15 49 36.46	78 15 19.62	4.41	− 11.64	55.8	58.1	61.8	60.9	59.15
51.99	4.22	11 43.08	35.79	327 41 11.74		16 15 48.85	71 12 27.51	3.32	9.94					
69.21	4.22	5 29.04	35.94	327 34 57.55		16 15 59.24	+ 71 18 41.70	3.34	9.94	56.20	57.67	61.70	61.56	59.28
.27	4.27					18 4 49.59	− 21 5	2.14			Mic.	38.289	−10	rdgs
		51.68	1 2.52	312 17 51.24										
5.42	4.29	51.09	1 2.52	50.65		18 21 3.15	+ 86 35 48.22	19.13	2.35		June	12,	13.5*h*	
		51.63	− 1 2.52	51.19						1.4	1.3	3.0	3.9	2.40
5.07	4.35	5 51.09	+ 0.25	0 14 52.76		18 31 53.75	38 38 48.07	2.12	− 3.05	1.1	1.9	3.5	2.9	2.35
+ .38	4.37					18 44 34.45	33 11	2.02		1.3	2.2	3.6	3.0	2.52
− 9.70	− 2.87					13 5 4.36	+ 88 30	1.27						
+ .27						13 17	− 10 22	1.36		1.27	1.80	3.37	3.26	2.42
− 23.54	+ 10.30	4 2.77	1 42.42	61 26 54.59	38.934	15 29 55.22	22 33 15.34	2.33	+ 1.86					
5.55						15 56	19 23				Mic.	38.966	−−10	rdgs.
		1 48.58	50.73	42 11 48.21		16 6	3 18 8.96		− 1.38					
		3 7.18	1 59.49	64 59 18.97		16 20	26 5 39.72		0.75		June	24,	15*h*.	
		1 38.20	+ 3 0.00	72 54 32.47		16 40	− 34 0 53.22		0.98	1.0	1.5	1.9	2.0	1.60
		1 47.13	− 53.13	316 36 53.32		17 1	+ 82 16 45.93		11.94	1.1	1.2	1.2	1.7	1.30
		1 18.72	+ 1 53.44	63 44 11.33		17 12	− 24 50 32.08		4.30	0.8	0.8	1.0	0.9	0.88
		4 14.89	3 39.03	75 52 52.00		17 23	36 59 12.75		4.23	0.97	1.17	1.36	1.53	1.26
		3 35.94	1 48.59	62 41 22.58		17 50	− 23 47 43.33		6.57					
1 28.58	− 20.81					18 20 54.91	+ 86 35	10.90			Mic.	38.897	−−10	rdgs.
− 10.49	21.34					19 17 58.29	2 49	2.36						
+ .50	21.39					19 39 10.06	10 15	2.38			Aug.	9,	19.5*h*	
− 6.14	21.40					19 43 30.19	8 28	2.41		4 0	4.2	4.6	4.7	4.38
+ .50	21.41					19 47 59.03	6 2	2.40		4.0	4.5	4.8	4.4	4.42
− 17.38	28.26					17 27 4.41	+ 52 25	1.73						
	28.26	1 31.47	1 46.10	62 48 20.65	38.837	17 47	− 23 54 41.40		5.58	4.00	4.35	4.70	4.55	4.40
	28.26	3 34.05	1 34.28	59 59 10.33		18 4	− 21 5 31.08		7.31		Mic.	38.709	−5	rdgs.
+ 3.79	28.26					18 20 53.13	+ 86 35	− 10.31						
	28.26	2 35.75	5.46	5 41 46.53		18 44	+ 33 11 52.72		18.64					
	− 28 26	+ 2 32.31	+ 2 6.50	66 46 38.61		18 57	− 27 52 59.36		−− 8.75					

No. for ref.	COR. IN R.A.		COR. IN DEC.		Corrected Readings.	Mic. Zero.	OBSERVED		REDUCTION TO 1850.0		NADIR POINT.				
	Inst.	Clock.	Inst	Object.			R. A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	+ 0.50	− 28.25					19 43 30.16	+ 8 28	− 2.40						
2	+ .50	28.25					19 47 59.02	+ 6 2	2.40						
3		28.25	+ 1 35.86	+ 1 9.72	51 53 46.03		20 9	− 13 0 6.78		− 14.37					
4	− 7.15	28.25					20 36 21.97	+ 44 45	2.87			Sept.	6,	18.8h	
5	+ .49	32.93					18 4 49.85	− 21 5	2.30		0.4	0.9	5.9	1.1	2.08
6	2.77	32.93					18 20 50.63	+ 86 36	8.11		0.9	0.9	6.8	0.7	2.32
7	3.99	32.93					18 31 53.55	38 39	2.05		0.8	1.2	6.7	1.3	2.50
8	+ .53	32.93					18 44 34.59	33 11	2.11						
9	− 6.02	31.53					18 44 34.34	33 11	1.93		0.70	1.00	6.47	1.03	2.30
10	+ .49	31.53					18 58 32.98	13 38	2.05			Mic.	38.924	−10	rdgs
11	.49	31.53					19 17 58.18	2 49	2.02						
12	+ .50	− 31.53					19 43 30.11	8 28	2.28						
13			− 11.83	− 1 11.75	307 24 10.77	38.991						Sept.	17,	20.5h	
14			11.88	1 11.73	10.84						0.9	1.9	2.2	1.4	1.60
15			11.69	1 11.71	11.12						0.7	1.4	2.0	1.6	1.42
16	− 5.09	+ 10.77	11.72	1 11.69	11.19		13 6 1.97	88 30 32.10	− 62.05	+ 3.52	0.80	1.65	2.10	1.50	1.51
17			12.03	1 11.68	10.97										
18			11.26	1 11.66	11.83										
19			10.45	− 1 11.64	12.73							Mic.	38.934	−10	rdgs.
20	+ .59	10.78					13 41 36.60	+ 50 4	+ .81						
21	4.14	10.81					16 6 30.54	− 3 18	− 1.15			Sept.	21.		
22	.50	10.81					16 20 14.42	− 26 5	1.50		2.4	4.2	3.1	3.4	3.28
23	+ .50	12.27					19 39 9.64	+ 10 15	2.00		2.9	2.4	3.8	4.1	3.30
24	− 1.36	12.27					19 43 29.87	+ 8 28	2.06		2.5	2.9	3.6	3.5	3.12
25	+ .50	12.29					20 27 5.97	− 18 16							
26	.49	12.30					20 55 54.05	− 20 27	2.50		2.60	3.17	3.50	3.67	3.23
27	+ .50	12.55	0.51	+ 27.13	25 14 41.47	38.978	18 58 32.61	+ 13 38 57.78	1.74	− 19.80					
28	− 10.49	12.55	− 2 23.13	41.90	36 4 9.34		19 17 57.93	2 49 29.91	1.93	17.38		Mic.	38.845	−10	rdgs.
29	− 5.07	12.56	+ 1 41.76	31.44	28 38 13.92		19 39 9.57	10 15 25.33	1.99	19.83					
30	+ .50	12.56	12.06	33.79	30 24 45.93		19 43 29.82	+ 8 28 53.32	2.04	19.56		Sept.	23,	19h.	
31	+ .49	12.57	4 33.95	1 13.46	51 53 45.36		20 9 45.83	− 13 0 6.11	2.28	14.23	2.5	2.5	5.0	4.9	3.72
32	− 23.02	12.59					20 55 54.16		2.49		3.1	2.4	5.0	5.0	3 88
33	+ .49	12.59	1 23.13	+ 1 11.23	50 51 52.64		21 1 27.56	11 58 13.39	2.44	15.96	3.5	2.2	5.0	5.5	4.05
34			33.07	−58 1.74	54 55 16.28										
35	.50	12.59	33.62	54 1.74	16.83		21 17 29.39	16 1 37.21			3.03	2.37	5.00	5.13	3.88
36			33.06	−58 1.74	16.27										
37	.49	12.60	1 17.03	+ 1 24.83	55 41 39.31		21 38 47.76	− 16 48 0.06	2.57	15.62		Mic.	38.902	−10	rdgs.
38	+ .49	15.33	29.41	41.44	36 4 13.15	38.939	19 17 57.92	+ 2 49 26.10	1.85	17.41					
39	− 21.83	15.33	1 47.91	31.18	28 38 19.67		19 39 9.58	10 15 19.58	1.91	19.97					
40	+ .50	15.33	3 15.52	33.52	30 24 50.59		19 43 29.71	8 28 48.66	1.96	19.89					
41	− 3.18	15.33					19 47 58.62	+ 6 2	1.98						
42	+ .49	15.32					20 9 21.93	− 13 0	2.20						
43	.49	15.32	1 42.07	+ 1 12.89	51 53 50.66		20 9 45.77	− 13 0 11.41	2.20	14.16					
44	.57	15.32	2 36.80	− 5.88	354 8 31.54		20 36 21.56	+ 44 45 7.71	2.32	26.04					
45	+ .52	15.31	1 31.42	+ 9.41	9 16 29.13		21 6 35.65	29 37 10.12	2.39	23.85					
46	− 10.99	15.31					21 15 3.05	61 57	3.24						
47	+ .78	15.30					21 26 46.48	+ 69 54	4.08						
48	.52	15.30					21 58 48.04	− 1 3	3.03						
49	.49	15.30	6.22	+ 1 6.98	49 16 10.95		22 26 14.94	10 22 31.70	2.57	− 17.47					
50	.49	15.30	+ 3 0.30	+ 1 6.89	49 19 5.24		22 28 34.20	10 25 25.99							
51	+ .50	15.29					22 49 23.68	− 30 25	2.70						
52	− 5.09	+ 15.56					13 6 6.04	+ 88 30	− 68.12						

No.	Object.	COR. IN R.A.	Observed Semi-diam.	
		Semi-diam.	Hor.	Vertical.
		m. s.	m. s.	′ ″
25	Moon -	+ 1 4.28		
35	Moon -	1 3.55		
3	Venus -	+ 75		+ 11.60

13 to 19. Observed for dec. at 55*m.* 34*s.*, 59*m.* 0*s.*, 2*m.* 46*s.*, 6*m.* 3*s.*, 10*m.* 5*s.*, 13*m.* 4*s.*, 16*m.* 40*s.*
14 to 18. Circle readings interpolated.
34, 35, 36. Observed for dec. at 17*m.* 21*s.*, 17*m.* 32*s.*, and 17*m.* 43*s.*
43. Observed for dec. at 9*m.* 56*s.*
51. Too bright to be well observed. Forgot to replace the cap on telescope before observing.
52. Unsteady at wires IV, VI, VII.

DATE	No. for ref.	OBJECT OBS'D.	TIMES OF TRANSIT OVER WIRES. I.	II.	III.	IV.	V.	VI.	VII.	Mean.	READINGS OF CIRCLE AND MICROMETER. A.	B.	C.	D.	Mean.	Mic.		Barometer.	THER'S. At.	Ex.
1850.			s.	s.	s.	s.	s.	s.	s.	h. m. s.	° ′ ″	″	″	″	″	Wire	Rev.	In.	°	°
Sept. 25	1	α Virginis - - -		39.33	50.84	1.88	13.04	24.10	35.65	13 17 7.47						IV.				
	2	α Bootis - - -	58.22	9.89	21.50	33.03	44.76	56.40	8.58	14 8 33.19										
	† 3	Venus, 1st & N. L.									58 11 60.8	50.7	56.4	55.5	55.85		39.352	30.192	72.7	74.[illegible]
	† 4	Venus, 1st & S. L				0.48	12.27	23.97	35.82	14 53 18.13							10.010			
	† 5	δ Ursæ Minoris -	1.0	8.0							312 18 3.8	6.5	9.3	6.6	6.55		39.628	30.160	72.2	68.5
	6				11.5												39.650			
	† 7					16.4				18 20 18.20							39.674			
	8						22.5										39.632			
	† 9							28.2	39.8								39.600			67.5
	10	β Lyræ - - - -	38.23	51.67	4.54	17.94	30.82	43.86	57.19	18 44 17.75	5 41 62.5	58.2	63.[illegible]	62.9	61.87		38.472			
	11	6521, B. A. C. -	42.97	55.06	7.45	20.18	32.44	44.90	57.63	18 57 20.09	66 44 61.2	55.7	60.9	60.3	59.52		38.059			
	12	6727, B. A. C. -								19 31	62 38 62.7	56.0	61.7	59.2	59.90		30.152	30.152	70.5	62.5
	13	γ Aquilæ - - -		31.09	42.09	53.24	4.60	15.75	27.23	19 38 59.00										
	14	α Aquilæ - - -	40.32	51.45	2.48	13.60	24.71	35.86	47.23	19 43 13.67										
	15	β Aquilæ - - -	9.48	20.30	31.24	42.44	53.74	4.50	15.95	19 47 42.52										
	16	7458 - - - -								21 20	70 44 61.7	54.0	57.2	57.4	57.58		37.392	30.132	66.0	57.5
	17	ε Pegasi - - - -	2.26	12.94	24.20	35.24	46.20	57.37	9.01	21 36 35.32	29 41 64.8	58.5	64.0	62.9	62.55		37.823	30.136	65.7	56.0
	18	7714 - - - -	27.54	40.60	53.65	7.03	20.48	33.28	46.88	22 1 7.07	72 8 64.2	57.5	63.8	62.0	61.88		36.309	30.138	65.2	56.9
	19	7750 - - - -	56.79	9.16	21.74	34.29	46.93	59.15	12.10	22 6 34.31	67 21 42.3	37.7	40.5	42.2	40.68		38.930	30.136	65.2	57.0
	20	Neptune - - -	33.54	44.85	55.85	6.93	18.22	29.46	40.75	22 28 7.08	49 18 51.0	45.0	45.7	50.8	48.12		39.427	30.140	67.2	56.7
	21	α Piscis Aust. - -									69 16 36.9	32.2	36.4	34.6	35.01		37.630	30.138	64.5	56.7
25	†22	Polaris, S P. -	3.0	2.0	5.0	0.0	54.0	54.0	42.0	13 5 57.13										
	†23	δ Ursæ Minoris -	3.5	8.0	12.3	18.5	23.0	28.6	39.0	18 20 18.99										
	24	α Lyræ - - - -	54.27	8.10	22.12	36.00	49.96	4.24	18.72	18 31 36.20										
	25	β Lyræ - - - -	38.04	50.77	3.97	17.15	30.25	43.34	57.00	18 44 17.22										
	26	6521 - - - -					31.98	44.20	57.00	18 57 44.39										
28	27	Sun, 1st L. - -		20.57	30.57	42.60	53.75	4.50	16.05	12 17 48.01										
	28	Sun, 2d L. - -	17.79	28.79	40.24	51.04	1.82	12.88	24.44	12 19 51.00										
	†29	Polaris, S. P. -							40.0		307 23 58.6	56.1	60.2	60.1	58.75		41.930	29.924	76.0	75.0
	30							58.0									.880			
	31						58.0										.834			
	†32					59.0				13 5 57.50							.780			75.2
	33			63.5	60.5												.800			
	†34		3.5														.875	29.918		75.4
	35	α Bootis - - - -				32.14	43.79	55.58	7.47	14 8 43.88										
	36	5915 - - - -								17 23	75 48 59.5	59.0	61.5	59.0	59.75		39.820	29.918	77.0	72.6
	†37	δ Ursæ Minoris -	1.5								312 18 3.5	2.8	6.2	2.8	3.82		39.700	29.918	77.0	72.0
	38			6.5	10.3												39.720			
	†39					15.2	21.0	25.4		18 20 16.70							39.670			
	†40								37.0								39.630	29.912	76.0	70.8
	†41	α Lyræ - - - -	53.25	7.44	21.19	35.33	49.36	3.53	18.09	18 31 35.46	0 14 8.5	2.1	3.8	4.5	4.72		39.765	29.916	76.0	76.0
	42	6521 - - - -	41.72	54.07	6.46	19.00	31.45	43.64	56.58	18 57 18.99	66 44 12.5	2.4	8.0	8.2	7.78		39.718	29.926	75.4	68.5
	43	δ Aquilæ - - -	7.71	18.47	29.66	40.48	51.53	2.43	13.65	19 17 40.56	36 2 60.0	48.8	54.5	56.7	55.00		40.090	29.934	74.8	69.4
	44	γ Aquilæ - - -	52.31	3.39	14.35	25.72	36.61	47.80	59.30	19 39 25.64	28 38 61.8	53.7	55.0	59.5	57.50		36.857	29.942	75.0	68.0
	45	α Aquilæ - - -			34.74	45.66	56.92	7.80	19.26	19 43 56.88	30 23 58.0	48.4	52.5	53.8	53.18		39.624			
	46	β Aquilæ - - -	41.63	52.55	3.68	14.55	25.63	36.80	48.00	19 47 14.69	32 50 51.0	46.8	40.0	47.0	46.20		38.713	29.950	74.5	67.8
	†47	α² Capricorni - -		38.85	50.58	1.85	13.08	24.51	35.94	20 10 7.47	51 23 62.2	53.0	59.0	58.0	58.05		36.410	29.960	74.4	66.1
30	†48	Sun, N. L. - -									41 41 63.4	56.3	60.4	61.8	60.47	II.	39.180	30.406	65.2	61.3
	†49	Sun, S. L. - -									66.4	59.8	62.5	64.8	63.37	VI.	44.148	30.400	65.2	59.9
Oct. 1	50	Sun, 1st & S. L.	31.40	42.78	53.48	4.44	15.58	26.55	38.00	12 29 4.60	42 5 59.7	50.8	57.5	57.7	56.42	VI.	43.025	30.220	63.4	63.8
	51	Sun, 2d & N. L.	39.92	51.06	2.10	12.94	24.05	35.06	46.56	12 31 13.10	61.5	53.0	59.5	60.4	58.60	II.	38.131	30.218	63.9	65.1

Date.	Clock.	Hourly rate.	VALUE OF m.	n.	c	Error of runs.	Mic. coin. At.	
h.	s.	s.	s.	s.	s	″	h.	rev.
Sept. 23, 18	s 15.591	l .005	+ .375	+ .024	+ .118	— 0.48		
25, 18	15.943	l .011						
28, 17	s 16.800	l .024	+ .154	.000	+ .120	— 0.37		
20	f 16.435	l .077						
Oct. 1, 21	f 13.820	l .019				— 0.40		

1 rev. = 34″.356

3, 4. Mic. recorded 38r.352 and 39r.010.
Sept. 25. Adjusted microscopes.

No. for ref	COR. IN R A. Inst.	COR. IN R A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic Zero	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	NADIR POINT. B.	NADIR POINT. C.	NADIR POINT. D.	NADIR POINT. Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Rev.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	— 05.08	+ 15.57					13 17 17.96	— 10 22	— 0.31						
2	+ .51	15.57					14 8 49.27	+ 19 58	— 0.02						
3			+ 11.59	+ 1 20.46	58 13 27.90	39.015									
4	— 16.94	+ 15.58	+ 34.20	+ 1 21.05	58 13 51.10		14 53 17.01	— 19 20 0.25							
5			22.05	— 1 7.89	312 17 20.71	39.015						Sept.	28,	20h.	
6			22.53	1 7.92	21.16						61.3	61.4	59.3	61.9	60.98
7	+ 2.77	15.59	22.64	1 7.95	21.24		18 20 36.56	+ 86 36 18.61	+ 6.65	— 25.64	60.9	61.9	60.1	62.2	61 27
8			21.87	1 7.98	20.44						60.8	61.4	60.7	62.5	61.35
9			+ 21.14	— 1 8.02	19.67										
10	.53	15.59	— 18.64	+ 5.66	5 41 48.89		18 44 33.87	+ 33 11 50.36	— 1.34	24.25	61.00	61.57	60.03	61.20	61.20
11	+ .50	15.59	32.83	2 11.39	66 46 38.08		18 57 36.18	— 27 52 58.83	+ 2.02	4.43		Mic.	38.984	—10	rdgs.
12		15.60	1 18.66	1 49.75	62 39 30.99		19 31	— 23 45 51.74		— 9.32					
13	— 5.07	15.60					19 39 9.53	+ 10 15	1.88			Sept	30,	12h	
14	+ .50	15.60					19 43 29.77	8 28	1.92		2.0	3.3	6.5	4.4	4.05
15	.50	15.60					19 47 58.62	+ 6 2	1.93		1.8	3.4	6.6	5.1	4.23
16		15.60	55.75	2 43.39	70 46 45.22		21 20	— 31 53 5.97		11.09	2.0	4.1	6.6	4.8	4.37
17	.50	15.60	40.94	32.94	29 41 54.55		21 36 51.42	+ 9 11 44.70	2.44	20.66	1.93	3.60	6.57	4.76	4.22
18	.50	15.61	1 32.95	2 56.87	72 10 25.80		22 1 23.18	— 33 16 46.55	2.72	12.49					
19	.52	15.61	— 2.91	2 17.35	67 23 55.12		22 6 50.44	28 30 15.87	2.64	12.25					
20	+ .51	15.61	+ 14.17	1 6.81	49 20 8.88		22 28 23.20	10 26 29.63				Mic.	39.001	—10	rdgs.
21		15.61	— 47.57	+ 2 31.21	69 18 18.65		22 49	— 30 24 39.40		14.63					
22	— 5.09	15.89					13 6 7.93	+ 88 30	— 68.82						
23	+ 2.77	15.95					18 20 37.71	86 36	+ 7.46			Oct.	1,	14h.	
24	.55	15.95					18 31 52.70	38 39	— 1.13		59.7	59.8	61.3	61.4	60.55
25	+ .53	15.95					18 44 33.70	+ 33 11	1.29		57.5	59.7	60.2	60.2	59.40
26	— 24.36	15.95					18 57 35.98	— 13 58	1.98		57.8	59.2	60.1	59.0	59.02
27	— 5.21	16.68					12 19 3.51	— 1 58			58.40	59.57	60.53	60.20	59.67
28	+ .27	16.68													
29			+ 1 35.86	— 1 12.11	307 24 22.50	39.019						Mic.	39.188	—10	rdgs.
30			1 34.99	1 12.09	21.65										
31			1 34.86	1 12.08	21.53										
32	— 4.46	16.70	1 35.94	1 12.08	22.61		13 6 9.74	+ 88 30 42.75	— 69.69	— 4.23					
33			1 35.38	1 12.09	22.04										
34			1 35.02	— 1 12.09	21.68										
35	— 11.39	16.73					14 8 49.29	+ 19 58	+ 0.01						
36			27.52	+ 3 36.74	73 53 4.01		17 23	— 36 59 23.74		+ 0.37		Oct.	1,	23h	
37			24.45	— 1 0.99	312 17 27.28						59.0	61.6	62.2	63.0	61.45
38			24.36	1 1.02	27.16						60.0	62.4	62.9	63.7	62.25
39	+ 2.18	16.83	23.50	1 1.09	26.23		18 20 35.71	+ 86 36 12.87	+ 8.88	— 25.74	59.8	62.2	63.0	62.7	61.92
40			23.36	— 1 1.12	26.06						59.60	62.07	62.70	63.13	61.87
41	.31	16.84	25.63	.25	0 14 30.60		18 31 52.61	+ 38 39 8.65	— 1.07	24.93					
42	.29	16.85	24.02	+ 2 9.41	66 46 41.21		18 57 36.13	— 27 53 1.96	1.94	6.46		Mic.	39.019	—10	rdgs.
43	.27	+ 16.86	+ 36.80	40.69	36 4 12.49		19 17 57.69	+ 2 49 26.76	1.73	17.52					
44	+ .28	— 16.46	— 1 14.28	30.60	28 53 14.13		19 39 9.46	10 15 25.43	1.79	20.20					
45	— 10.81	16.46	+ 20.78	32.89	30 24 46.85		19 43 29.61	8 28 52.40	1.85	20.08					
46	+ .28	16.45	— 10.51	36.21	32 51 11.90		19 47 58.52	+ 6 2 27.35	1.87	18.82					
47	— 5.34	16.42	1 29.63	1 11.63	51 53 40.05		20 9 45.71	— 13 0 0.60	— 2.11	— 17.71					
48			—14 34.05	45.31	41 28 13.18	39.124	12 26	— 2 50 35.91							
49			+17 28.86	46.36	42 0 17.14										
50	+ .27	13.98	+16 49.40	46.24	42 23 33.15	39.178	12 29 55.14	— 3 13 53.32							
51	+ .27	13.98	—15 10.85	+ 45.34	41 51 31.99										

No.	Object.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
27	Sun - -		1 4.23	
48	Sun - -			16 1.98
50	Sun - -		1 4.25	16 0.58

4. + ″.58 applied for defective illumination.
5 to 9. Observed for dec. at 17*m*. 26*s*., 18*m*. 53*s*., 20*m*. 20*s*., 21*m* 45*s*., and 23*m*. 19*s*.
22, 41, 47, 48, 49. Unsteady. 41. Blurred.
23. Observed through thin cloud.
29 to 34. A little unsteady. Observed for dec. at 59*m*. 15*s*., 2*m*. 38*s* , 6*m*. 5*s*., 9*m*. 47*s*., 13*m*. 27*s*., and 15*m*. 47*s*.
37 to 40. Unsteady ; sky hasy. Observed for dec. at 17*m*. 17*s*., 18*m*. 44*s* . 23*m*. 25*s*., and 24*m*. 49*s*.

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1			+ 1 28.59	— 1 14.35	307 24 17.79										
2			1 29.61	1 14.35	18.81										
3			1 30.17	1 14.34	19.38							Oct	3,	20*h.*	
4			1 28.41	1 14.33	17.63						0.0	1.5	2.0	2.0	1.38
5			1 28.84	1 14.32	18.07						1.2	2.9	2.8	2.7	2.40
6			1 28.77	1 14.31	18.01						1.2	2.5	3.8	3.5	2.75
7			1 29.74	1 14.30	18.99										
8	— 4.46	13.97	1 29.46	1 14.29	18.72		13 6 13.14	— 88 30 39.18	— 70.09	— 5.46	0.80	2.30	2.87	2.73	2.18
9			1 29.66	1 14.29	18.97	39.178									
10			1 29.15	1 14.29	18.41							Mic.	39.017	—10	rdgs.
11			1 28.28	1 14.29	17.54										
12			1 29.01	1 14.29	18.27										
13			1 29.51	1 14.29	18.77										
14			1 28.85	1 14.29	18.11										
15			1 29.84	1 14.29	19.10										
16			+ 1 29.10	— 1 14.29	18.36										
17			— 18.91	+ 1 30.32	61 1 12.56										
18	+ .28	— 13.92	+ 7.03	+ 1 39.88	61 1 39.06		15 26 38.49	— 22 7 46.56							
19	+ .35	13.88	— 1 7.46	— 12.79	347 22 45.37		17 53 7.75	+ 51 30 53.88	0.28	24.74					
20	— 11.47	13.88	+ 29.08	+ 1 38.46	59 59 6.54		18 4 49.02	— 21 5 27.29	— 1.54	6.64					
21			17.84	— 1 2.82	312 17 23.37										
22			17.05	1 2.84	22.46										
23			17.47	1 2.86	25.96										
24			17.43	1 2.88	22.90										
25	+ 1.96	13.87	16.80	1 2.90	22.25		18 20 33.09	+ 86 36 16.45	+ 10.26	25.63					
26			16.96	1 2.91	22.40										
27			16.52	1 2.93	21.94										
28			16.91	1 2.95	22.31										
29			+ 16.19	— 1 2.97	21.57										
30	.30	13.86	— 28.31	+ 5.73	5 41 47.24	39.074	18 44 33.73	+ 33 11 52.01	— 1.18	24.38					
31	.29	13.86	— 7.01	2 12.90	66 46 39.24		18 57 36.07	— 27 52 59.99	1.89	6.00					
32	.27	13.85	+ 29.82	41.87	36 4 12.24		19 17 57.64	+ 2 49 27.01	1.70	17.51					
33	.28	13.85					19 30 50.26	— 23 46	2.00						
34	+ .28	13.85	— 1 18.33	1 50.77	62 39 32.89		19 31 7.67	— 23 45 53.64	2.00	8.95					
35	— 1.96	13.84					19 43 29.66	+ 8 28	1.81						
36	+ .28	13.84	+ 1 7.17	37.29	32 51 9.45		19 47 58.43	+ 6 2 29.80	1.84	18.89					
37	.28	13.84					20 9 21.86	— 12 58	2.08						
38	.28	13.84					20 9 45.69	— 13 0	2.08						
39	+ .28	13.81	53.94	33.19	29 41 57.10		21 36 51.41	+ 9 11 42.15	2.37	21.11					
40	— .33	13.80	5.19	12 35.15	86 34 46.39		21 58	— 47 41 7.18	2.93	7.63					
41	— 3.44	13.79	2 3.71	1 7.61	49 24 7.96		22 27 41.70	10 30 28.71							
42	+ .29	13.79	+ 57.75	2 32.52	69 18 26.69		22 49 23.55	— 30 24 47.44	2.70	13.46					
43	.28	13.78	— 1 6.17	26.50	24 29 22.41		22 57 20.16	+ 14 24 16.84	2.69	— 20.51					
44	.29	13.76					0 0 41.61	28 15	3.11						
45	.28	13.76					0 5 33.81	+ 14 21	2.86						
46	+ 3.99	13.76	+ 48.44	+ 1 2.22	50 7 53.28		0 15 51.18	— 11 14 14.03							
47	— 4.46	12.92					13 6 12.48	+ 88 30	— 70.22						
48	+ .28	12.83					14 8 49.13	+ 19 58	+ .06						
49	.28	12.70					15 34 57.54	— 22 45							
50	.28	12.35					19 38 9.41	+ 10 15	— 1.71						
51	.28	12.34					19 43 29.59	8 28	1.77						
52	+ .28	12.34					19 47 58.33	+ 6.2	— 1.79						

No.	Object.	COR. IN R.A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
17	Venus -	+ .82		13.25
49	Venus -	+ .85		
8	Sun - -		1 4.49	

1 to 16. Unsteady. Observed for declination at 52*m.* 0*s.*, 54*m* 0*s.*, 56*m.* 17*s.*. 58*m.* 11*s.*, 1*m.* 12*s.*, 3*m.* 14*s.*, 6*m.* 12*s.*, 7*m.* 0*s.*, 7*m.* 40*s.*, 9*m.* 17*s.*, 10*m.* 20*s.*, 12*m*, 0*s*, 13*m.* 13*s.*, 16*m.* 0*s.*, 17*m.* 16*s.*, and 20*m.* 0*s.*

18. Applied + 0″.53 for defective illumination.

21 to 29. Observed for declination at 11*m.* 35*s.*, 14*m.* 43*s.*., 17*m.* 17*s.*, 19*m.* 10*s.*, 20*m.* 45*s.*, 22*m.* 16*s.*, 23*m.* 49*s.*, 26*m.* 54*s.*, and 30*m.* 5*s.*

46, 50, 51. Poor observations. 50, 51. Observed with full aperture.

No. for ref.	COR. IN R. A.		COR. IN DEC.		Corrected Readings.	Mic. Zero.	OBSERVED		REDUCTION TO 1850.0		NADIR POINT.				
	Inst.	Clock.	Inst.	Object.			R. A.	DEC.	R. A.	DEC.	A.	B.	C.	D.	Mean
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″					
1	+ 0 .28	— 12.29					20 9 45.73	— 13.00	— 2.03						
2	16.67	12 04					21 58 47.98	47.41	2.88						
3	.28	11.98	+ 2 55.97	+ 1 7.90	49 25 1.36	39.080	22 27 32.17	10 31 22.11							
4	+ .29	11.93	+ 51.67	2 33.22	69 18 23.37		22 49 23.75	— 30 24 44.12	2.68	— 13.46					
5	— 5.38	11.91	— 1 6.10	+ 26.10	24 29 20.12		22 57 20.20	+ 14 24 19.14	2.69	20.70					
6	+ .68	11.83	+ 20.20	— 45.51	322 5 40.84		23 33 22.21	76 47 58.41	7.95	17.91					
7	.27	11.75	1 52.82	+ 26.76	24 32 22.83		0 5 33.85	+ 14 21 16.42	2.86	18.11					
8	·27	10.63					12 40 49.03	— 4 29							
9	+ .27	10.63													
10	— 4.46	10.58					13 6 11.39	+ 88 30	70.29						
11	+ .28	10.04					18 4 48.93	— 21 5	— 1.47			Oct.	4,	19. h.	
12			22.12	— 1 2.61	312 17 25.29	39.152					4.9	5.7	7.0	7.2	6.20
13			23.17	1 2.62	26.33						3.8	6.0	6.0	6.6	5.60
14			22.31	1 2.63	25.46						3.6	5.6	7.0	6.8	5.75
15	1.96	10.01	22.30	1 2.64	25.44		18 20 31.24	+ 86 36 13.57	+ 11.43	25.48					
16			23.01	1 2.65	26.14						4.10	5.77	6.67	6.86	5.85
17			+ 22.30	— 1 2.66	25.42							Mic.	38.981	—10	rdgs.
18	+ .30	10.01	— 25.75	+ 5.70	5 41 45.97		18 44 33.51	+ 33 11 53.28	— 1.09	24.34					
19		9.88	1 37.62	1 50.67	62 39 19.60		19 31	— 23 45 40.35	1.94	8.83					
20	— 23.92	9.88	1 24.85	1 50.69	62 39 32.39		19 31 7.33	23 45 53.14	1.93	8.81					
21		3.67	27.84	1 40.87	63 3 31.28	39.230	15 55	24 10 5.14	70.29						
22		3.67	— 2.08	+ 1 41.33	63 3 57.50										
23	11.47	3.46					18 4 48.93	— 21 5	— 1.39						
24			+ 25.44	— 1 3.32	312 17 25.42										
25			24.16	1 3.34	24.12										
26	— 1 30.56	3.43	24.00	1 3.37	23.93		18 20 30.09	+ 86 36 15.20	+ 13.23	25.42		Oct.	8,	20. 5h.	
27			23.27	1 3.40	23.17						57.2	59.0	59.4	59.8	58.85
28			+ 23.71	— 1 3.42	23.59						56.6	59.0	60.6	59.6	58.95
29	+ .30	3.39					18 44 33.57	+ 33 11	— 0.99						
30	+ .29	3.37	— 43.58	+ 2 14.44	66 46 33.58		18 57 35.92	— 27 52 54.33	1.72	5.81	56.90	59.00	60.00	59.70	58.90
31	— 5.22	3.33					19 17 57.53	+ 2 49	1.58						
32	+ .29	3.31	1 34.32	1 52.04	62 39 19.90		19 30 50.10	— 23 45 40.65	1.84	8.68		Mic.	39.262	—5	rdgs.
33	.29	3.31	1 22.81	1 52.09	62 39 31.36		19 31 7.61	— 23 45 52.11	1.84	8.67					
34	+ .28	3.29					19 43 29.52	+ 8 28	1.67						
35	— 10.75	3.28					19 47 58.29	+ 6 2	1.69						
36	+ .28	3.24	— 1 27.04	1 14.39	51 53 43.98		20 9 45.60	— 13 0 4.73	1.94	13.58					
37	.50	1.48					21 26 45.52	+ 69 54	3.24						
38	+ .33	1.44					21 58 47.73	— 47 41	2.77						
39	— 5.30	1.42	+ 1 57.01	1 8.20	49 27 40.03	39.114	22 27 4.83	— 10 34 0.78							
40	+ .28	1.40	13.14	32.39	28 50 23.04		22 34 1.24	+ 10 3 16.21	2.55	21.07					
41	.29	1.38	+ 48.30	2 33.81	69 18 23.56		22 49 23.59	— 30 24 44.31	2.62	12.18		Oct.	9,	23. 4h.	
42	.28	1.37	— 1 11.46	26.73	24 29 17.79		22 57 20.20	+ 14 24 21.46	2.64	21.18	0.2	0.9	1.2	2.0	1.08
43	·29	1.30	+ 1 25.34	11.06	10 37 36.41		0 0 41.58	+ 28 16 2.84	3.08	19.38	0.2	1.5	2.2	2.1	1.50
44			8.11	+ 1 4.96	50 46 13.95		0 9	— 11 52 34.70			0.0	2.0	3.4	2.5	1.97
45			2.72	— 1 9.19	310 22 58.13						0.13	1.47	2.27	2.20	1.52
46			2.04	1 9.20	57.44										
47			1.36	1 9.21	56.75							Mic.	39.070	—10	rdgs.
48			0.56	1 9.22	55.94										
49			1.08	1 9.23	56.45										
50			1.04	1 9.24	56.40										
51	+ 4.78	— 1.22	0.55	1 9.25	55.90		1 6 14.92	+ 88 30 42.61	— 71.15	— 8.56					
52			+ 1.00	— 1 9.25	56.35										

No	Object.	COR. IN R. A.	Observed semi-diam.	
		Semi-diam.	Hor.	Vert.
		m. s.	m. s.	′ ″
21	Venus -			13.11

7, 10. Unsteady.
12 to 17. Faint but steady. Observed for dec. at 17*m*. 42*s*., 19*m*. 12*s*., 20*m*. 0*s*., 20*m*. 45*s*., 22*m*. 8*s*., and 23*m*. 30*s*.
22. +0.″43 applied for defective illumination.
24 to 28. Observed for dec. at 16*m*. 0*s*, 20*m*. 0*s*., 21*m*. 0*s*., 22*m*. 0*s*., and 23*m* 0*s*.
32. Observed for dec. at wire VII.
45 to 52. Observed for dec. at 45*m*. 4*s*., 48*m*. 30*s*., 52*m*. 6*s*., 55*m*. 49*s*., 59*m*. 20*s*., 2*m*. 37*s*., 6*m*. 8*s* , and 9*m*. 40*s*.

APPARENT R.A. AND DEC. OBSERVED WITH THE MERIDIAN CIRCLE.

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	B.	C.	D.	Mean.
	s.	s.	′ ″	′ ″	° ′ ″	Revs.	h. m. s.	° ′ ″	s.	″	″	″	″	″	″
1	— 0.02	+ 37.35					23 4 39.36	— 9 2							
2	.02	37.35					23 6 35.54	6 51	— 2.25						
3	.02	37.34	— 20.51	+ 1 8.66	49 19 9.57		23 11 11.64	10 25 30.32	2.27	— 14.16					
4	— .02	37.34	+ 24.39	+ 1 3.51	49 34 27.04		0 0 13.87	— 10 40 47.80							
5	+ .06	37.34	+ 1 42.34	— 17.84	343 10 23.07		0 32 5.63	+ 55 43 16.16	4.13	25.07					
6	+ 3.75	37.37					1 6 7.69	88 30	64.91						
7			— 1 7.93	— 1 16.88	307 24 39.41										
8			1 7.53	1 16.86	39.79										
9			1 7.04	1 16.83	40.27										
10			1 7.73	1 16.81	39.56										
11			1 8.44	1 16.79	38.83										
12			1 7.99	1 16.77	39.26										
13			1 7.87	1 16.75	39.36										
14	— 3.97	37.31	1 8.10	1 16.73	39.11	42.428	13 6 10.55	+ 88 31 0.11	— 64.83	— 21.66					
15			1 8.53	1 16.71	38.66										
16			1 7.89	1 16.69	307 24 40.30	42.428						Nov.	14,	17h. 3	
17			1 8.04	1 16.67	39.15						0.3	1.4	5.1	3.0	2.45
18			1 7.54	1 16.65	39.65						0.8	1.8	4.9	2.7	2.55
19			1 7.03	1 16.63	40.16						0.8	3.9	4.8	2.0	2.88
20			1 9.06	1 16.61	38.14										
21			— 1 8.40	— 1 16.59	38.81						0.63	2.37	4.93	2.57	2.62
22	.01	37.53					14 8 49.26	+ 19 58	— 0.13						
23	— .03	37.53	+ 2 8.90	+ 1 18.07	54 12 27.37		14 47 14.77	— 15 18 48.12				Mic.	42.352	—15	rdgs.
24	+ 23.14	37.54													
25	— .02	37.54					15 18 21.59	18 17							
26			— 20.72	1 51.72	66 37 33.57							Nov.	14,	0 .3	
27	.02	37.55	+ 22.13	1 51.89	66 38 16.59		17 58 43.79	— 27 44 15.83			2.2	4.4	5.5	5.5	4.40
28	— 90.98	37.56					18 20 13.58	+ 86 36	+ 27.46		2.0	4.5	5.7	5.0	4.30
29	+ .01	37.56	— 47.34	0.25	0 14 27.71		18 31 51.57	+ 38 39 11.84	— 0.02	— 20.10					
30		37.58	+ 54.12	2 34.59	69 18 26.16	42.305	22 49	— 30 24 46.91	2.16	7.62	2.10	4.45	5.60	5.25	4.35
31	— .01	37.58	— 1 52.46	26.89	24 29 18.20		22 57 19.78	+ 14 24 21.05	2.27	22.13					
32	.02	37.58	+ 1 51.22	1 0.55	45 44 48.39		23 6 35.34	— 6 51 9.14	2.24	15.18		Mic.	42.178	—10	rdgs.
33	5.60	37.58	+ .80	+ 1 8.67	49 19 9.49		23 11 11.57	10 25 30.24	2.25	14.11					
34			— .52	—52 43.37	48 45 39.23										
35	.02	37.58	3.02	52 43.37	36.73		23 52 25.29	— 4 51 58.67				Dec.	11,	0h.	
36			1.94	—52 43.37	37.81						4.9	7.5	7.7	11.5	7.90
37	.01	37.59					0 5 33.61	+ 14 21	2.68		5.4	5.6	7.6	11.0	7.40
38	5.53	37.59									4.9	6.9	6.4	10.4	7.15
39	— 5.53	37.59	— 35.54	+ 50.53	35 28 5.39		0 59 42.56	3 25 33.86							
40	+ .06	37.59					0 32 5.61	55 43	4.12		5.07	6.67	7.23	10.96	7.48
41	+ 3.75	37.59					1 6 9.27	88 30	64.64						
42	— 3.97	67.61					13 6 1.50	88 31	— 61.69			Mic.	42.263	—10	rdgs.
43	25.65	67.62					13 41 36.75	50 4	+ 0.69						
44	.01	67.62					14 7 49.44	+ 19 58	— 0.26						
45	.02	65.70										Dec.	11,	2h.	
46	.02	65.70					16 8 34.94	— 20 59			59.2	61.3	59.8	64.5	61.20
47			+ 1 9.30	1 39.01	65 20 48.43	42.343					60.0	62.4	60.9	66.0	62.32
48	— .02	65.69	+ 1 58.77	1 39.17	65 21 38.06		18 9 19.65	— 26 27 33.99							
49	+ .02	65.69					18 31 51.38	+ 38 39	+ .16	17.22	59.60	61.85	60.35	65.25	61.76
50			— 2 7.48	1 52.18	62 8 14.94	42.481									
51			— 1 2.03	1 52.26	62 9 20.47		17 48	— 23 15 8.45				Mic.	42.475	—6	rdgs.
52	— 11.33	+ 53.37	+ 1 47.24	+ 1 1.23	45 44 45.47		23 6 34.84	— 6 51 6.22	— 1.91	— 13.16					

No.	Object.	COR. IN R. A. Semi-diam.	Observed Semi-diam. Hor.	Observed Semi-diam. Vert.
		m. s.	m. s.	′ ″
2	Moon	+ 1 1.95		
15	Saturn		.56	
23	Mercury	+ 0.16		
24	Sun		1 8.32	
26	Venus	1.62		21.50
35	Moon	1 2.41		
38	Saturn		0.86	
45	Sun		1 9.81	
47	Venus	1 94		24.82
50	Venus			32.76

3, 6, 7 to 21, 23, 31, 32, 42, 47. Unsteady.
5, 41. Blurred and unsteady.
4. Exceedingly faint. Observed for dec. at 59*m.* 43*s.*
7 to 21. Obs'd for dec. at 48*m.* 27*s.*, 52*m.* 34*s.*, 55*m.* 30*s.*, 59*m.* 48*s.*, 2*m.* 30*s.*, 3*m.* 38*s.*, 4*m.* 30*s.*, 5*m.* 8*s.*, 6*m.* 6*s.*, 7*m.* 19*s.*, 10*m.* 17*s.*, 13*m.* 51*s.*, 16*m.* 36*s.* 20*m.* 8*s.*, and 24*m.* 1*s.*
8 to 13, 15 to 21. Circle readings interpolated.
27. +0″.10 applied for def. illumination.
28. Very faint, but well defined.
34, 35, 36. Wavering. Observed for dec. at 51*m.* 47*s.*, 52*m.* 7*s.*, 52*m.* 23*s.*
37. Poor observation. Observed with full aperture.
48. +0.″08 applied for def. illumination.
49. Through clouds.
51. Correction for def. illumination +0 ″00.

No. for ref.	COR. IN R. A. Inst.	COR. IN R. A. Clock.	COR. IN DEC. Inst.	COR. IN DEC. Object.	Corrected Readings.	Mic. Zero.	OBSERVED R. A.	OBSERVED DEC.	REDUCTION TO 1850.0 R. A.	REDUCTION TO 1850.0 DEC.	NADIR POINT. A.	NADIR POINT. B.	NADIR POINT. C.	NADIR POINT. D.	NADIR POINT. Mean.
	s.	s.	′ ″	′ ″	° ′ ″	*Revs.*	h. m. s.	° ′ ″	″	′	″	″	″	″	″
1	— 5.64	+ 53.37	— 59.52	+ 1 9.47	49 19 13.30		23 11 11.25	— 10 25 34.05	— 1.92	— 12.08					
2	.02	53.36	58.42	—53 26.67	45 49 42.29		23 32 12.57	6 56 3.04							
3	11.03	53.34	6.88	+ 56.47	43 16 43.87		23 51 1.71	4 23 .4.62	2.16	13.26		Dec.	13,	3*h*. 5.	
4	.12	53.34	1 40.75	+ 1 0.89	45 26 16.19		23 57 41.45	— 6 32 36.94	2.19	12.48	59.6	61.7	60.2	65.4	61.72
5	— 17.03	53.34					0 5 33.48	+ 14 21	2.40		58.2	60.9	60.4	63.7	60.80
6			21.10	— 1 10.84	310 22 36.51						58.7	61.5	60.4	63.7	61.08
7			22.77	1 10.84	34.84										
8			22.71	1 10.84	34.90						58.83	61.37	60.33	64.27	61.20
9	+ 3.75	53.29	22.57	1 10.84	35.04		1 5 49.33	88 31 4.11	49.53	29.37		Mic.	42.440	—10	rdgs.
10			22.96	1 10.85	34.64										
11			22.68	— 1 10.85	34.92										
12			55.88	+ 17.52	16 8 18.06			22 45 21.19	3.30	15.73					
13	+ .06	51.19	— 1 19.22	— 18.83	343 10 20.97	42.475	0 32 4.73	+ 55 43 18.28	3.47	29.27					
14	— 5.50	51.18	+ 2 14.50	+ 53.85	40 51 2.75		0 45 23.08	— 1 57 23.50	2.46	12.99					
15	.02	51.18													
16	.02	51.18	— 1 51.93	+ 51.60	35 42 38.87		0 56 11.13	+ 3 11 0.38							
17	.02	51.17	— 1 49.29	—48 29.34	36 59 3.25	42.475	1 7 12.18	— 1 54 36.00							
18	.02	51.16	+ 3 6.30	+ 42.23	34 9 48.15		1 33 40.74	+ 4 43 51.10	2.80	12.49					
19		51.15	— 2 18.73	— 34.52	29 8 24.15		1 39	+ 9 45 15.10							
20	.01	51.14	— 1 38.88	+ 18.06	16 8 20.68		1 57 46.86	22 45 18.57	3.28	15.77					
21	.02	51.11	+ 1 36.02	+ 45.94	36 17 23.71		2 35 34.95	2 36 15.54	— 3.05	— 8.15					
22	.49	51.10	— 17.07	— 2 21.50	293 39 28.48		2 51 6.39	+ 74 45 49.23	+ 5.27	+ 17.91					
23	— .02	+ 51.05	+ 3 35.85	+ 1 22.45	52 49 55.95		3 51 4.98	— 13 56 16.70	— 3.06	— 0.94					

6 to 11. At wires I, II, unsteady. Observed for dec. at 3*m*. 13*s*., 4*m*. 1*s*., 4*m*. 49*s*., 6*m*. 38*s*., 8*m*. 26*s*., and 12*m*. 12*s*.
13, 14, 15, 23. Unsteady.
17. Observed for dec. at wire IV.

OBSERVATIONS

WITH THE

PRIME VERTICAL TRANSIT INSTRUMENT,

1849.

NATIONAL OBSERVATORY.

DATE.	No. for ref.	OBJECTS.	Vertical.	Telescope.	TIMES OF TRANSIT OVER WIRES. A.	B.	C.	D.	E.	F.	G.	Telescope.	TIMES OF TRANSIT OVER WIRES. G.	F.	E.	D.	C.	B.	A.
					h. m. s.	s.	s.	s.	s.	s.	s.		s.	s.	s.	s.	s.	s.	m. s.
1849. Jan. 4	†1	Lalande, 2603 - - -	Zen.	S.	1 15 28.0	58.0	34.0	59.5	31.0			N.			14.5	44.2	9.0	35.0	22 5.0
	2				16.894	.767	[illegible]	.605	.545						.876	.800	.705	[illegible]	[illegible]
	†3	Anonymous - - -	Zen.	S.	1 44 43.5	19.0	47.0	12.0	42.0			N.			43.5	18.0	41.8	10.0	57 38.0
	4				21.410	.115	.905	.700	.500						.465	.296	.163	.992	18.765
	†5	Anonymous - - -	Zen.	S.	1 47 21.5	52.0	13.0	37.5	2.0			N.			46.0	26.0	54.0	19.0	54 49.0
	6				17.618	.412	.328	.219	.123						.623	.536	.485	.450	22.305
	7	Anonymous - - -	E.	N.	2 2 8.8	41.2		56.5	31.0	0.3	43.4	S.	11.2	0.4	39.5	21.1		51.5	12 32.2
	8		W.	S.	3 23 57.5	39.0		9.0	50.8	29.5	19.3	N.	47.2	24.3	59.5	34.2		48.0	34 21.5
	†9	Anonymous - - -	Zen.	S.	2 21 7.0	31.0	56.0	15.0	36.0			N.			39.0	8.2	37.0	1.5	26 24.5
	10				17.808	.733	.688	.652	.600						.854	.841	.760	.686	21.630
	†11	Lalande, 5115 - - -	Zen.	N.	2 34 28.0	56.0	24.0	46.0	17.0			S.			36.0	7.6	28.5	18.0	41 42.5
	12				22.839	.980	.072	.135	.275						.030	.095	.143	.274	16.343
5	13	Lalande, 4667 - - -	E.	N.	0 50 58.2	14.0	32.9	50.2	6.0	22.3	39.5	[illegible]	49.8	6.9	24.1	41.2	58.8	16.0	55 34.5
	14		W.	S.	3 52 15.0	31.5	51.0	8.5	25.5	41.4	0.0	N.	11.0	28.0	44.2	0.2	18.0	36.9	56 53.0
	15	Anonymous - - -	E.	S.	1 10 59.3	21.0	42.1	2.9	25.0	45.5	7.2	N.	35.2	58.2	20.0	42.1	4.3	27.0	25 49.6
	16		W.	N.	3 42 41.0	5.0	25.3	48.1	11.1	32.0	55.1	S.	23.8	46.0	6.0	26.8	49.0	9.0	48 30.5
	†17	Lalande, 4784 - - -	E.	N.	1 30		19.3	46.5	12.8	40.5	58.2	S.	19.5	37.7	6.4	34.8	4.0		35
	18		W.	S.	3 20		32.8	1.5	29.8	58.0	16.0	N.	37.5	54.8	22.0	48.8	15.8		25
	19	Lalande, 4387 - - -	E.	S.	1 41 59.0	22.2	45.3	12.7	36.2	52.0	17.2	N.	31.0	49.5	5.0	33.0	5.5	32.5	49 0.0
	20		W.	N.	2 41 16.5	43.8	12.0	44.2	11.0	28.2	57.0	S.	59.8	25.5	40.8	3.5	[illegible]	55.9	48 16.5
10	†21	Lalande, 7391 - - -	E.	N.	3 19		31.2	17.5	4.9	55.5	30.2	S.	56.5	34.8	31.0	31.5	33.5		28
	22		W.	S.	4 16		49.2	55.0	51.0	50.0	27.8	N.	50.4	32.0	31.5	8.0	56.0		[illegible]
11	23	Lalande, 5834 - - -	E.	[illegible]	1 47 3.8	25.1	46.8	6.8	28.2	49.0	11.0	N.	38.2	1.6	23.8	45.0	5.3	[illegible]	52 52.5
	24		W.	N.	4 11 16.0	39.1	1.2	23.0	44.5	5.8	28.5	[illegible]	55.1	18.0	37.9	58.8	20.0	41.1	17 2.8
	†25	Lalande, 5682 - - -	E.	N.	1 56 21.5	46.1	14.2	43.0	7.2	33.0	59.0	[illegible]	49.5	19.2	46.0	13.0	43.2	12.8	3 39.5
	26		W.	S.	3 50 48.2	15.3	45.5	17 0	44.0	11.0	38.4	N.	31.5	58.5	24.0	50.8	16.3	45.0	58 09.3
Feb. 9	†27	Anonymous - - -	E.	S.	4 41 25.8	55.0	25.8	56.8			30.0	N.	45.0			26.9	1.5	35.0	50 12.0
	†28		W.	N.	6 17 19.0	56.0	30.8	5.3			46.5	S.	2.2			35.4	5.2	36.1	26 6.5
	29	Aurigæ, (1935.) - -	E.	N.	4 52 56.0	10.8	46.8	13.0	38.9	3.8	30.8	[illegible]	15.2	42.8	8.0	36.5	3.6	34.2	60 0.4
	30		W.	[illegible]	6 50 34.2	1.0	30.9	59.0	27.8	53.1	20.2	[illegible]	4.8	31.0	57.0	21.8	48.2	15.7	57 39.2
10	31	Lalande, 10650 - -	E.	N.	4 34 49.2	14.8	44.3	12.8	40.3	7.2	35.3	[illegible]	31.9	0.2	30.2	59.0	31.1	4.9	42 33.4
	32		W.	S.	6 22 34.0	2.8	37.2	8.2	37.6	6.8	36.2	N.	31.8	0.1	27.3	54.8	[illegible]	53.0	30 18.3
	33	Lalande, 11529 - -	E.	S.	4 58			14.2	40.8	4.3	32.5	N.	24.7	54.1	19.2	48.1			62
	34		W.	N.	6 54			6.2	34.8	0.3	29.8	S.	21.4	49.1	13.9	40.3			58
15	35	ε[2] Geminorum - - -	E.	[illegible]	4 49 38.2	48.0	58.2	8.0	18.3	28.2	[illegible]	N.	22.1	32.6	42.0	51.8	2.6	12.2	52 23.1
	36		W.	N.	9 58 52.2	2.0	12.0	22.2	32.0	42.1	52.0	S.	36.0	46.2	56.0	6.8	16.0	25.1	61 35.8
	37	Lalande, 12134 - -	E.	N.	4 57 21.8	39.0	1.8	23.3	43.0	3.2	24.0	S.	43.1	4.2	24.1	46.8	8.3	31.2	62 52.2
	38		W.	S.	7 26 50.3	10.5	34.0	57.1	17.1	38.0	58.4	N.	19.1	39.1	59.5	19.0	41.0	2.1	32 22.0
	39	Lalande, 13011 - -	E.	N.	5 15 51.3	9.0	29.1	48.8				[illegible]				55.8	16.0	37.0	20.57.2
	40		W.	[illegible]	7 57 43.1	0.8	24.1	43.2				N.				52.0	10.8	31.0	62 49.0
	41	Lalande, 13873 - -	E.	[illegible]	5 24 17.2	34.0	49.2	6.1	21.8	36.1	53.0	N.	3.2	[illegible]	35.2	52.0	8.7	24.1	28 41.1
	42		W.	N.	8 37 4.8	21.0	37.8	53.8	11.0	26.1	43.1	S.	52.0	8.0	23.9	39.2	55.5	11.0	41 27.2

1. Observed through clouds; magnitude uncertain.
18. lock-beat almost inaudible.
13, 20. serving; stars steady, but high wind renders clock-beat inaudible.
21, 22. high wind.
26. Fai .
27. Unsteady.
28. Faint after reversing.

No. for ref.	LEVEL READINGS. Means. N.	S.	S.—N.	Corr. for Level.	Mean of Wires.	Observed North Declination.	Reduct'n to 1850.0	Magnitude.	Observer.	OBJECTS.
	N.	S.	*Div.*	"	h. m. s.	° ′ ″	″			
1, 2	25.45	41.00	+ 15.55	+ 6.84		38 52 21.92	+ 12.25	8	H.	Lalande, 2603.
3, 4						38 53 39.52	12.58	8		Anonymous.
5, 6	26.20	41.35	15.15	6.67		38 52 30.27	12.59	9.10		Anonymous.
7	26.20	41.65	15.45	6.70	2 48 15.12	38 26 27.03	12.75	9		Anonymous.
8	27.10	42.20	15.10							
9, 10	26.55	41.65	15.10	6.64		38 52 49.44	12.69	8		Anonymous.
11, 12	26.70	41.70	15.00	6.60		38 52 8.69	12.67	9		Lalande, 5115.
13	25.05	40.70	14.65	6.43	2 23 54.98	36 39 58.47	13.31	8.9		Lalande, 4667.
14	26.15	40.35	14.20							
15	25.40	40.65	15.25	6.43	2 34 15.29	37 31 20.18	13.03	9		Anonymous.
16	26.10	40.85	14.75							
17	25.40	40.60	15.20	6.63	2 27 47.83	38 4 47.70	12.89	6.7		Lalande, 4784.
18	25.70	40.85	15.15							
19	25.60	40.55	14.95	6.64	2 15 8.45	38 39 29.48	12.74	9		Lalande, 4387.
20	25.60	40.85	15.25							
21	29.65	41.00	11.35	5.17	3 52 42.38	38 40 14.19	11.49	9		Lalande, 7391.
22	29.70	41.85	12.15							
23	27.70	42.90	15.20	6.42	3 2 3.53	37 29 35.09	12.65	8.9		Lalande, 5834.
24	29.75	44.10	14.35							
25	27.75	43.20	15.45	6.54	2 57 15.04	38 0 48.05	12.57	9.10		Lalande, 5682.
26	29.50	44.00	14.50							
27	26.85	37.40	10.55	4.61	5 33 45.81	38 16 27.75	6.06	9		Anonymous.
28	28.20	38.70	10.50							
29	27.00	37.70	10.70	4.57	5 55 17.63	37 57 47.07	5.06	7		Aurigæ, (1935.)
30	28.40	38.65	10.25							
31	25.15	37.35	12.20	5.33	5 32 33.78	38 6 47.50	6.10	9		Lalande, 10650.
32	26.05	38.25	12.20							
33	25.50	37.45	11.95	5.36	5 58 27.11	37 59 35.36	4.83	7.8		Lalande, 11529.
34	25.95	38.55	12.60							
35	28.60	40.20	11.60	5.12	7 25 37.11	32 12 44.14	1.25			α^2 Geminorum.
36	29.75	43.40	13.65							
37	28.30	40.70	12.40	5.33	6 14 51.19	37 23 11.85	3.77	8.9		Lalande, 12134.
38	30.10	42.15	12.05							
39	28.55	40.95	12.40	5.21	6 39 19.89	37 7 24.57	2.52	9		Lalande, 13011.
40	30.55	42.00	11.45							
41	28.55	41.25	12.70	+ 5.20	7 2 52.76	36 22 8.99	+ 1.49	9		Lalande, 13873.
42	30.75	42.20	+ 11.45							

					h. m. s.
1, 2.	Assumed clock time of transit			=	1 18 52
3, 4.	Do.	do.	do.	=	1 51 51
5, 6.	Do.	do.	do.	=	1 51 53
9, 10.	Do.	do.	do.	=	2 23 44
11, 12.	Do.	do.	do.	=	2 38 37

No. for ref.	Level Readings. Means. N.		S. — N.	Corr. for Level.	Mean of Wires.	Observed North Declination.	Reduct'n to 1850.0	Magnitude.	Observer.	Objects.
	N.	S.	Div.	"	h. m. s.	° ′ "	"			
1	26.65	41.70	+ 15.05	+ 6.29	7 25 38.37	32 12 43.80	+ 0.90		H.	α^2 Geminorum.
2	27.80	43.75	15.95							
3	27.45	41.60	14.15	6.26	7 29 18.57	35 22 45.24	− 0.05	6.7		Lalande, 14806.
4										
5	26.95	42.15	15.30	6.59	7 12 37.27	37 2 14.84	+ 0.41	6.7		Lalande, 14218.
6	27.80	42.95	15.15							
7	27.60	42.55	14.95	6.59	8 22 12.62	37 45 56.31	− 3.06	7.8		Anonymous.
8	27.85	43.15	15.30							
9	27.90	42.60	14.70	6.62	8 37 44.51	38 35 13.11	− 3.83	9		Anonymous.
10	27.74	43.15	15.40							
11	24.40	36.95	12.55	5.23	5 50 8.36	37 11 42.46	+ 4.74	4		θ Aurigæ.
12	26.10	37.70	11.60							
13	25.00	37.15	12.15	5.20	6 25 46.04	37 49 35.53	2.44	9		Anonymous.
14	26.15	37.85	11.70							
15	25.00	37.15	12.15	5.20	6 25 46.39	37 49 41.06	+ 2.44	11		Anonymous.
16	26.15	37.85	11.70							
17	20.75	31.25	10.50	4.19	7 10 12.11	36 56 35.39	− 0.85	8		Lalande, 14120.
18	22.85	31.60	8.75							
19	21.05	31.05	10.00	4.07	7 21 14.19	37 5 0.73	1.58	9		Lalande, 14499.
20	23.05	31.70	8.65							
21	20.95	31.10	10.15	4.17	7 20 54.04	38 28 34.22	1.97	7.8		Lalande, 14484.
22	22.50	31.40	8.90							
23, 24	21.30	31.30	10.00	4.40		38 50 35.92	0.80	9		Lalande, 13747.
25	22.60	31.40	8.80	3.68	7 23 54.77	32 12 44.25	0.46			α^1 Geminorum.
26	24.90	34.25	9.35							
27	22.60	31.40	8.80	3.68	7 23 55.22	32 12 46.70	0.46			α^2 Geminorum.
28	24.90	34.25	9.35							
29	22.50	31.95	9.45	3.79	7 18 29.11	35 6 19.95	1.01	8		Lalande, 14465.
30	24.95	33.40	8.45							
31	22.50	32.00	9.50	3.80	7 28 15.64	34 55 26.20	1.55	4.5		o Geminorum.
32	25.00	33.50	8.50							
33	23.05	32.35	9.30	3.88	7 59 18.79	35 54 2.18	3.63	7.8		Lalande, 15882.
34	24.95	33.85	8.90							
35	20.30	26.55	6.25	2.49	11 10 9.81	36 18 46.58	14.52	8		Lalande, 21563.
36	22.35	27.70	5.35							
37	18.80	23.80	5.00	1.95	11 32 34.91	35 3 12.02	15.35	6.7		Ursæ Majoris, (3965.)
38	20.35	24.55	4.25							
39	18.45	24.20	5.75	2.01	11 51 31.04	34 48 2.99	15.27	9.10		Lalande, 22565.
40	20.75	24.50	3.75							
41	18.85	23.90	5.05	+ 1.22	14 8 16.21	19 58 8.12	− 12.30			α Bootis.
42	22.70	25.95	+ 3.25							

DATE.	No. for ref.	OBJECTS.	Vertical.	Telescope.	TIMES OF TRANSIT OVER WIRES. A.	B.	C.	D.	E.	F.	G.	Telescope.	TIMES OF TRANSIT OVER WIRES. G.	F.	E.	D.	C.	B.	A.
1849.					h. m. s.	s.	s.	s.	s.	s.	s.		s.	s.	s.	s.	s.	s.	m. s.
April 10	1	α Coronæ Borealis	E.	S.	12 4 27.4	43.0	58.8	14.0	29.3	45.0	52.0	N.	41.3	48.8	4.2	20.3	35.5	51.4	8 7.0
	2		W.	N.	18 47 28.1	44.0	59.5	15.3	31.0	46.2	54.0	S.	43.0	50.1	5.8	21.3	36.7	52.1	51 7.6
	3	Anonymous	E.	N.	12 12 17.0	30.0	44.2	58.3	11.0	24.9		S.		45.8	58.3	11.8	26.2	42.0	15 54.0
	4		W.	S.	16 1 51.0	3.9	18.8	33.0	46.2	59.6		N.		21.6	34.1	47.2	1.3	15.9	5 28.2
	5	Lalande, 27803	E.	N.	13 13 1.0	14.1	28.8	42.9	56.0	9.6	23.3	S.	18.0	32.2	46.4	59.2	14.4	29.3	16 42.8
	6		W.	S	16 57 30.0	42.9	58.0	12.8	26.1	39.4	58.0	N.	49.2	2.1	16.2	30.0	44.1	59.0	61 11.9
	7	Anonymous	E.	S.	14 39 57.0	11.9	26.0	40.9	55.4	9.0	24.3	N.	24.8	40.2	54.3	9.0	24.0	38.0	43 53.9
	8		W.	N.	18 12 22.8	38.0	52.8	7.2	21.9	36.1	51.7	S.	52.1	7.3	21.0	35.7	51.0	4.3	16 19.3
	9	α Lyræ	E.	S.	17 57 24.0	51.8	8.3	41.8	58.0	31.8		N.		52.2	29.8	48.0	27.2	47.5	64 21.0
	10		W.	N.	18 58 17.2	51.0	11.0	49.8	8.3	45.9		S.		5.2	38.8	55.9	28.5	44.8	65 13.0
May 15	11	Lalande, 27390?	E.	S.	13 2 56.2	10.8	24.5	38.5	53.4	6.8	21.4	N.	22.3	37.8	50.8	5.7	20.2	34.5	6 49.8
	12		W.	N.	16 39 1.2	16.0	40.3	54.1	9.9	23.0	38.1	S.	28.2	43.5	56.3	11.5	25.9	39.2	42 54.2
	13	ζ Herculis	E.	N.	13 55 18.5	28.0	38.1	48.5	58.7	7.9	17.2	S.	55.8	5.8	15.3	24.2	34.9	45.6	57 54.9
	14		W.	S.	19 11 47.9	57.1	8.0	18.2	27.2	37.1	47.3	N.	25.6	35.2	44.8	54.1	4.6	14.8	14 24.5
	15	Coronæ Borealis	E.	S.	14 1 57.3	12.8	27.8	43.0	58.2	12.9	28.2	N.	34.2	50.2	5.0	20.2	36.0	51.8	6 7.8
	16		W.	N.	17 23 28.3	44.8	1.1	16.3	51.9	47.1	3.0	S.	7.2	23.1	38.0	53.2	8.9	23.3	27 39.2
	17	α Lyræ	E.	S.	17 57 13.0	42.0	59.0	30.8	48.0	9.8	36.0	N.	32.0	59.2	22.9	42.1	21.5	40.8	64 13.8
	18		W.	N.	18 57 55.8	28.5	43.8	26.8	45.9	10.8	36.5	S.	36.2	1.3	23.0	39.0	12.7	29.5	64 57.0
Sept. 18	19	α Lyræ	E.	N.	17 55 34.6	16.2	4.8	51.5	36.4	22.3	11.8	S.	38.7	34.2	29.2	30.3	35.0	46.3	69 49.0
	20		W.	S.	18 53 56.5	0.5	12.5	17.0	16.3	13.8	9.0	N.	36.0	24.2	9.0	54.2	43.8	30.2	68 11.5
19	21	α Bootis	E.	N.	9 54 26.3	38.2	50.9	4.2	10.1			S.			38.2	44.0	56.0	9.0	57 21.4
	22		W.	S.	18 20 13.2	26.5	39.0	52.0	57.1			N.			26.1	32.0	44.5	57.2	23 10.2
	23	α Lyræ	E.	S.	17 55 26.8	11.0	54.8	39.7	26.5	11.0	1.8	N.	42.8	42.0	37.1	38.4	41.2	46.7	69 57.5
	24		W.	N.	18 53 46.0	57.8	1.0	6.0	6.0	01.8	59.2	S.	38.8	28.8	13.6	2.0	45.3	30.7	68 14.5
21	25	α Lyræ	E.	N.	17 55 32.0	13.0	0.6	47.9	34.0	19.8	8.0	S.	37.0	33.0	28.8	28.2	33.8	44.8	69 51.0
	26		W.	S.	18 53 52.2	58.0	8.8	13.6	14.0	9.0	5.5	N.	32.0	19.5	6.0	51.8	39.0	27.8	68 8.0
24	27	α Lyræ	E.	S.	17 55 26.9	11.2	54.8	40.0	26.5	11.3	1.2	S.	39.0	38.8	34.0	35.0	37.3	42.3	69 53.8
	28		W.	N.	18 53 45.5	55.9	1.5	5.0	5.8	59.0	58.8	N.	37.8	28.6	13.3	0.3	44.5	28.8	68 13.8
25	29	α Bootis	E.	S.	9 54 21.3	34.2	46.9	59.3	5.5	12.0	18.3	N.	23.4	29.3	36.0	42.3	54.2	8.0	57 20.6
	30		W.	N.	18 20 8.4	21.0	34.0	46.6	53.3	59.2	5.6	S.	12.0	18.2	24.2	31.0	43.2	56.2	23 8.3
	31	α Lyræ	E.	S.	17 55 26.2	10.9	55.1	39.9	26.7	10.8	1.3	N.	39.0	37.0	32.5	34.0	36.0	42.0	69 52.2
	32		W.	N.	18 53 45.3	56.2	1.0	3.2	5.2	0.3	58.9	S.	36.0	26.2	12.2	57.5	42.2	27.0	68 10.8
27	33	α Bootis	E.	S.	9 54 18.5	31.1	43.7	55.8	2.5	8.5	15.0	N.	21.0	26.2	33.3	40.0	52.1	5.9	57 18.0
	34		W.	N.	18 20 6.2	19.0	32.0	44.5	0.9	7.2	13.2	S.	9.2	15.4	21.8	28.1	40.9	54.0	23 6.2
28	35	α Bootis	E.	N.	9 54 19.0	31.7	43.9	56.4	2.6	9.6	16.0	S.	17.2	23.8	31.0	36.8	49.6	2.4	57 15.0
	36		W.	S.	18 20 6.3	19.6	32.3	45.0	51.0	57.2	4.2	N.	5.7	11.9	19.0	24.7	37.3	50.2	23 2.9
Dec. 11	37	α Lyræ	E.	S.	17 53 8.3	52.2	36.0	20.8	7.2	52.0	42.0	N.	18.2	16.0	11.0	11.8	14.5	18.0	67 27.5
	38		W.	N.	18 51 58.2	8.3	12.8	14.5	16.3	11.0	8.0	S.	46.2	36.2	20.3	6.2	50.8	34.0	66 18.0
	39	θ Andromedæ	E.	S.	23 1 32.3	56.2	20.6	44.2	8.7	31.3	57.2	N.	42.8	9.0	33.8	58.8	25.9	51.0	8 18.3
	40		W.	N.	1 6 2.2	29.0	55.3	21.4	47.5	11.2	38.2	S.	24.3	49.8	13.2	37.8	2.1	25.4	12 50.3
12	41	α Lyræ	E.	N.	17 53 13.2	53.8	41.9		14.7	0.0	48.0	S.	12.5	8.0	3.0		6.2	15.5	67 20.2
	42		W.	S.	18 52 6.5	10.5	21.0		23.8	19.0	15.0	N.	40.0	28.2	14.5		46.3	34.0	66 14.0
	43	θ Andromedæ	E.	N.	23 1 35.0	57.2	23.1	48.8	13.0	37.0	0.5	S.	38.5	4.3	29.4	54.6	21.0	49.8	8 14.8
	44		W.	S.	1 6 7.0	32.0	0.8	27.3	52.5	17.4	43.0	N.	20.2	45.3	9.0	33.0	57.3	23.2	12 46.8

LEVEL READINGS. Means. N.	S.	S. — N.	Corr. for Level.	Mean of Wires.	Observed North Declination.	Reduct'n to 1850.0	Magnitude.	Observer.	OBJECTS.
N.	S.	*Div.*	"	h. m. s	° ′ ″	"			
19.25 22.25	23.65 26.95	+ 4.40 4.70	+ 2.67	15 27 47.60	27 13 29.18	− 8.74		H.	α Coronæ Borealis.
19.20 21.95	23.80 25.25	4.60 3.30	1.68	14 8 52.64	35 17 5.02	11.02	9		Anonymous.
19.85 22.15	24.70 25.35	4.85 3.20	1.71	15 7 6.20	35 26 48.35	7.20	8.9		Lalande, 27803.
21.30 22.40	25.00 26.00	3.70 3.60	1.56	16 28 8.21	35 48 54.08	− 0.81	8.9		Anonymous.
22.20 22.52	26.12 27.05	3.92 4.53	1.85	18 31 18.78	38 38 38.73	+ 11.73			α Lyræ.
17.55 20.30	24.95 27.50	7.40 7.20	3.12	14 52 55.16	35 42 22.50	− 16.47	7.8		Lalande, 27390?
18.40 20.70	25.55 28.75	7.15 8.05	3.08	16 34 51.42	31 52 47.55	7.81	3		ζ Herculis.
18.10 21.05	26.00 27.45	7.90 6.40	3.07	15 44 48.24	36 7 45.93	− 12.39	6.7		κ Coronæ Borealis.
20.50 20.50	28.25 28.85	7.75 8.35	3.54	18 31 5.10	38 38 45.52	+ 5.34			α Lyræ.
11.57 14.09	15.46 16.91	3.89 2.82	1.48	18 31 53.39	38 39 13.62	− 24.01			α Lyræ.
12.81 14.07	18.17 19.80	5.36 5.73	1.61	14 8 47.80	19 58 21.29	23.63			α Bootis.
12.91 14.55	17.80 22.14	4.89 7.59	2.74	18 31 51.04	38 39 14.53	24.00			α Lyræ.
13.51 13.93	19.79 21.17	6.28 7.24	2.97	18 31 50.62	38 39 15.69	24.14			α Lyræ.
13.27 15.25	22.24 22.97	8.97 7.72	3.67	18 31 49.67	38 39 15.26	24.22			α Lyræ.
13.75 12.15	23.86 18.77	10.11 6.62	2.45	14 8 44.73	19 58 22.71	22.81			α Bootis.
11.45 13.02	18.60 20.27	7.15 7.25	3.17	18 31 48.77	38 39 15.12	24.26			α Lyræ.
15.95 14.30	25.25 21.87	9.30 7.57	2.47	14 8 42.17	19 58 20.95	22.51			α Bootis.
14.10 11.64	23.40 18.00	9.30 6.36	2.30	14 8 40.80	19 58 21.78	22.36			α Bootis.
20.60 21.27	27.31 27.65	6.71 6.38	2.88	18 29 43.44	38 39 0.56	10.51			α Lyræ.
21.17 22.57	27.42 29.25	6.25 6.68	2.82	0 7 10.64	37 51 0.54	6.01			θ Andromedæ.
22.46 22.14	29.02 29.06	6.56 6.92	2.97	18 29 43.74	38 39 0.67	11.95			α Lyræ.
22.92	29.90	6.98	3.05	0 7 10.78	37 51 0.28	− 7.81			θ Andromedæ.

OBSERVATIONS

WITH THE

PRIME VERTICAL TRANSIT INSTRUMENT,

1850.

NATIONAL OBSERVATORY.

DATE.	No. for ref.	OBJECTS.	Vertical.	Telescope.	TIMES OF TRANSIT OVER WIRES. A.	B.	C.	D.	E.	F.	G.	Telescope.	TIMES OF TRANSIT OVER WIRES. G.	F.	E.	D.	C.	B.	A.
1850.					h. m. s.	s	s.	s.	s.	s.	s.		s.	s.	s.	s.	s.	s.	m. s.
Jan. 9	1	Lalande, 5300 -	E.	N.	1 36		11.1	35.6	58.5	21.0	44.1	S.	17.2	41.0	3.9	28.0	52.2		40
	2		W.	S.	3 45		44.2	9.3	33.0	55.9	19.2	N.	51.8	14.2	36.1	58.0	23.0		50
Feb. 22	†3	Anonymous - -	Zen.	N.	5 17 29.2	2.8	26.1	52.8	13.1			S.			2.8	30.7	19.2	44.2	28 14.3
	†4				14.438	.732	.002	.134	.299						.884	.825	.935	.678	23.180
	†5	Anonymous - -	Zen.	N.	5 19 49.6	11.1	29.6	48.2	5.2			S.			26.2	54.6	32.2	5.1	25 25.3
	†6				14.003	.153	.268	.358	.458						.358	.358	.362	.309	24.225
25	†7	Anonymous - -	Zen.	S.	6 6 28.8	50.8	12.0	33.8	51.0			N.			20.7	40.3	57.2	16.2	11 34.1
	†8				18.967	.032	.059	.145	.118						.748	.750	.628	.510	19.391
26	9	Lalande, 10650 -	E.	N.	4 35			47.80	14.58	12.83		S.		36.84	6.76	35.46			39
	10		W.	S.	6 23			37.48	6.00	35.40		N.		29.48	57.68	25.30			27
	11	Lalande, 1066 -	E.	N.	4 36				20.52	17.86	16.81	S.	12.80	10.10	8.20				40
	12		W.	S.	6 24				1.00	29.82	0.96	N.	53.21	21.98	18.40				27
Mar. 5	13	Aurigæ, (2139) -	E.	S.	5 45	15.32	54.32	33.30	15.14	54.08	37.79	N.	44.66	33.08	19.08	8.52	58.34	49.32	55
	14		W.	N.	6 55	20.00	10.20	1.40	50.40	35.00	24.60	S.	28.84	13.05	51.68	32.88	11.28	49.94	65
7	15	Aurigæ, (2139) -	E.	S.	5 45	6.68	45.68	24.80	6.80	14.98	28.04	N.	34.20	22.14	7.96	57.26	48.24	38.90	55
	16		W.	N.	6 55	7.86	58.88	48.52	38.52	24.14	12.60	S.	19.24	2.46	12.58	22.66	2.24	41.16	65
8	17	Lalande, 11959 -	E.	S.	5 25 43.05	19.95	55.60					N.					7.60	53.06	36 39.80
	18		W.	N.	6 42 53.45	40.48	25.53					S.					37.63	13.35	53 51.10
11	19	Aurigæ, (2239) -	E.	S.	6 5 49.80	32.15	14.53	56.12	10.70	23.06	10.53	N.	36.48	30.82	21.29	17.30	14.38	12.86	19 16.39
	20		W.	N.	8 8 44.68	46.46	45.78	12.69	39.91	29.81	24.66	S.	50.45	38.75	21.46	5.32	48.08	29.11	22 11.16
12	21	β Tauri - - - -	E.	S.	2 3 56.70	12.65	29.18	45.60	53.70	1.71		N.		41.40	49.73	58.22	14.31	31.06	7 47.37
	22		W.	N.	8 25 59.22	15.44	32.10	48.42	56.60	4.97		S.		45.06	53.00	1.23	17.32	33.73	29 50.00
June 10	23	α Lyræ - - - -	E.	N.	17 56	4.22	52.28	39.08	25.55			S.			14.78	11.38	18.08	25.06	68
	24		W.	S.	18 55	33.10	41.24	46.38	44.37			N.			35.75	21.95	8.60	56.51	67
Sept. 17	25	α Lyræ - - - -	E.	S.	17 56	5.00		33.30	21.05		56.16	N.	32.93		26.09	28.27		34.00	68
	26		W.	N.	18 54	44.27		54.05	55.28		51.30	S.	28.92		4.28	49.40		18.99	67
21	27	α Bootis - - - -	E.	N.	9 54 36.48	48.86	55.07	1.86	8.38	14.45		S.		4.23	10.50	16.93	23.90	29.92	56 42.60
	28		W.	S.	18 20 28.40	40.85	47.10	53.74	0.52	6.68		N.		55.60	1.83	8.46	15.29	21.31	22 33.86
	29	α Lyræ - - - -	E.	S.	17 55 18.78	2.80	47.20		19.05	3.54	53.72	N.	28.26	26.86	22.42		25.58	31.29	69 42.71
	30		W.	N.	18 53 31.30	42.20	47.57		51.25	46.05	43.72	S.	25.73	14 66	0.46		31.30	17.03	67 59.85
Nov. 25	31	α Lyræ - - - -	E.	N.	17 57 28.60	51.70	14.22	37.91	1.70	27.69		S.		42.95	11.05	37.42	6.30	32.27	64 00.26
	32		W.	S.	18 57 33.84	0.83	27.50	56.10	22.77	50.40		N.		4.66	29.60	54.36	17.86	40.35	64 03.58
Dec. 12	33	α Lyræ - - - -	E.	N.	17 57 36.15	58.41	22.38	45.22	9.57	34.75		S.		51.60	19.36	47.10	14.82	42.50	64 10.06
	34		W.	S.	18 57 49.10	16.66	43.52	12.19	39.66	6.58		N.		25.45	48.90	13.72	38.40	2.15	64 24.10
13	35	α Lyræ - - - -	E.	S.	17 57 14.90	39.06	3.25	24.77	50.46	15.90	39.50	N.	50.10	18.00	46.75	14.13	41.91	10.92	64 41.47
	36		W.	N.	18 57 21.70	52.67	20.82	30.85	17.95	17.70	12.06	S.	20.87	45.20	11.88	35.50	58.27	20.80	66 44.89
18	37	α Lyræ - - - -	E.	N.	17 57 40.30	2.66	25.06	50.28	13.87	38.47	4.41	S.	27.70	55.04	22.06	50.15	17.04	44.70	64 12.15
	38		W.	S.	17 57 53.95	22.90	19.32	17.16	14.42	11.83	40.52	N.	5.40	31.13	55.53	20.56	44.58	7.60	64 30.84
20	39	α Lyræ - - - -	E.	S.	17 58			31.71	56.12	21.48	45.35	N.	51.73	17.55	46.66	14.04			63
	40		W.	N.	18 59			0.30	27.16	56.42	21.95	S.	28.14	51.14	17.43	40.90			63

		h. m. s.
3.	Assumed clock time of transit	= 5 23 30
5.	Do. do. do.	= 5 24 0
7.	Do. do. do.	= 6 7 14

No. for ref.	LEVEL READINGS. Means. N.	S.	S. —N.	Corr. for Level.	Mean of Wires.	Observed North Declination.	Reduct'n to 1850.0	Magnitude.	Observer.	OBJECTS.
	N.	S.	Div.	″	h. m. s.	° ″ ′	″			
1 2	19.45 19.75	26.75 27.52	+ 7.30 7.77	+ 5.60	2 43 17.86	37 45 59.53	— 1.56	6	H.	Lalande, 5300.
3 4	18.75	22.60	3.85	2 89		38 55 7.69	+ 1.49			Anonymous.
5 6	18.75	22.60	3.85	2.89		38 55 46.93	1.49			Anonymous.
7 8	15.40	18.20	2.80	2.10		38 53 27.42	2.16			Anonymous.
9 10	13.70 14.50	19.75 17.80	6.05 3.20	3.48	5 31 36.30	38 6 52.49	1.75			Lalande, 10650.
11 12	13.70 14.60	19.75 17.80	6.05 3.20	3.44	5 32 05.14	38 7 1.00	1.75			Lalande, 10666.
13 14	18.25 18.84	23.37 23.71	5.12 4.87	3.73	5 55 33.84	38 33. 36.20	2.08	5		Aurigæ, (2139.)
15 16	18.25 18.65	22.20 22.72	3.95 4.07	3.00	5 55 23.55	38 33 35.93	1.96			Aurigæ, (2139)
17 18	17.45 17.95	21.35 21.85	3.90 3.90	2.92	6 09 46.71	38 29 20.22	1.75			Lalande, 11959.
19 20	17.39 17.95	21.70 21.95	4.31 4.00	3.12	6 44 00.52	38 28 7.26	1.92	6.7		Aurigæ, (2239.)
21 22	16.70 17.55	20.11 21.89	3.41 4.34	2.47	5 16 53.28	28 28 25.15	+ 4.86			β Tauri.
23 24	15.04 15.57	15.78 16.07	0.74 0.50	0.46	18 31 59.89	38 38 52.66	— 3.02			α Lyræ.
25 26	13.50 14.75	17.15 17.40	3.65 2.65	2.36	18 31 41.45	38 39 14.89	24.80			α Lyræ.
27 28	15.55 14.80	17.00 15.85	1.45 1.05	0.62	14 08 35.28	19 58 2.86	4.92			α Bootis.
29 30	13.82 14.95	16.30 16.82	2.48 1.87	1.63	18 31 38.05	38 39 15.19	24.98			α Lyræ.
31 32	20.12 19.89	26.86 26.52	6.74 6.63	5.01	18 30 46.41	38 39 6.78	17.55			α Lyræ.
33 34	16.65 16.59	24.55 24.30	7.90 7.71	5.85	18 30 59.68	38 39 2.71	12.83			α Lyræ.
35 36	15.72 15.13	24.45 24.90	8.73 9.77	6.94	18 31 01.15	38 39 4.50	12.53			α Lyræ.
37 38	15.08 14.82	23.19 23.35	8.11 8.53	6.24	18 31 04.27	38 39 1.87	11.10			α Lyræ.
39 40	14.17 14.26	23.80 23.76	9.63 9.50	+ 7.17	18 31 06.75	39 39 2.29	— 10.36			α Lyræ.

COMET 1849.—III.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Comet—Star. Δ α	Δ mic.	RESULTS.
		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
1849. April 19	B. Z., 412, 151 - -	20.8	34.3	47.8	11 41 34.30	2	45.275	+ 1 33.39	+ 6.317	s.
	Comet - - - - -			21.2	43 7.69	2	38.958			Corr. Chron. —0 45.30
	B. Z., 412, 151 - -	44.8	58.2	11.6	44 58.27	2	45.216	1 32.22	5.878	α δ
	Comet - - - - -			44.0	46 30.49	2	39.338			h m. s. ° ′ ″
	B. Z., 412, 151 - -	12.2		39.2	48 25.70	2	45.453	1 29.81	5.361	B. Z., 412, 151 13 54 29.45 + 23 56 09.37
	Comet - - - - -	42.0			49 55.53	2	40.092			Comet — B. Z., 412, 151
	B. Z., 412, 151 - -	44.2	57.3	11.5	12 5 57.67	2	50.498	1 20.63	2.121	Δ α Δ δ
	Comet - - - - -	5.7	18.2	31.0	7 18.30	2	48.377			h. m. s. m. s. ″
	(° 10) - - - - -	6.7	20.2	33.6	10 20.17	2	53.415			Sid. T. 12 27 27.86 +1 8.72 —0 23.46
	B. Z., 412, 151 - -	26.8	39.8	52.8	13 39.80	2	50.475	1 16.37	+ 0.414	Δ ρ .00 — .01 p — .60 + 8.52
	Comet - - - - -	42.5	56.0	9.0	14 56.17	2	50.061			
	(° 10) - - - - -	48.2	1.2	15.7	17 1.70	2	53.346			
	B. Z., 412, 151 - -	43.8	57.5	11.1	30 57.47	2	50.317	1 7.16	— 1.850	
	Comet - - - - -	51.0	4.7	18.2	32 4.63	2	52.167			
	(° 10) - - - - -	36.4	49.7		33 49.87	3	44.231			
	B. Z., 412, 151 - -	15.2	29.2	41.8	36 28.73	2	50.122	1 3.97	2.979	
	Comet - - - - -	19.5	33.1	45.5	37 32.70	2	53.101			
	(° 10) - - - - -	7.7	21.0	34.5	39 21.07	3	44.349			
	B. Z., 142, 151 - -	20.3	33.6	47.3	48 33.73	2	50.019	0 56.50	5.432	
	Comet - - - - -	16.8	30.5	43.4	49 30.23	2	55.451			
			26.2	39.5	51 26.13	3	43.970			
	B. Z., 142, 151 - -	35.8	49.5	8.2	13 27 49.50	2	49.918	0 35.27	12.540	
	Comet - - - - -	11.0	25.1	38.2	28 24.77	2	62.458			
	B. Z., 142, 151 - -	7.4	20.8	34.2	32 20.80	2	50.089	+ 0 31.85	—12.553	
	Comet - - - - -		53.0	5.7	32 52.65	2	62.642			
										s.
	(° 8) - - - - -	35.2	48.2	1.8	10 58 48.40	2	21.589	+ 1 12.25	— 1.861	Corr. Chron. —0 42.36
	(° 9) a - - - -	42.0			59 55.51	3	36.396			
April 20	Comet - - - - -		1.0	13.5	11 0 0.65	2	28.450			α δ
	° - - - - - -	53.0			0 6.51	3	36.662			h. m. s. ° ′ ″
	(° 10) - - - - -		32.0	46.0	0 32.40	2	34.701			(a) 13 41 12.38 + 22 46 10.67
	a - - - - - - -	59.3	13.2	26.3	5 12.93	2	21.583	1 8.14	3.501	Comet — (a) Δ α Δ δ
	Comet - - - - -	7.5	21.3	34.3	6 21.07	2	25.084			h. m. s. m. s. ′ ″
		43.7	57.1	10.5	6 57.10	2	34.560			Sid. T. 11 13 40.97 +1 2.71 —1 22.10
	a - - - - - - -	18.2	31.5	44.7	10 31.47	2	21.956	1 4.33	5.010	Δ ρ .00 — .03 p — 1.02 + 10.36
	Comet - - - - -	22.8	36.1	48.5	11 35.80	2	26.966			
		1.6	15.2	28.2	12 15.00	2	34.571			
	a - - - - - - -	11.8	26.1	39.2	15 25.70	2	21.896	1 1.27	6.109	
	Comet - - - - -	14.1	26.8	40.0	16 26.97	2	28.005			
		56.2	9.0	22.5	18 9.23	2	35.949			
	a - - - - - - -	26.2		53.2	21 39.70	2	22.003	0 57.50	7.417	
	Comet - - - - -	24.5	37.1	50.0	22 37.20	2	29.420			
		10.0	23.1	36.5	23 23.20	2	34.690			
	a - - - - - - -	12.5	25.5	38.5	28 25.50	2	21.881	+ 0 52.80	— 8.149	
	Comet - - - - -	5.0	18.2	31.7	29 18.30	2	30.030			
		54.8	7.4	22.0	30 8.07	2	34.899			

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.	RESULTS.
1849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
Sept. 9	7724, B. A. C. - -	56.7	10.2		19 14 10.30	2	33.549	+ 0 23.90	+ 9.490	
	(° 10) - - - - -		25.5		14 25.60	2	25.699			
	Metis - - - - -		34.1	47.0	14 34.20	2	24.059			
	7724, B. A. C. - -	34.8	48.1	1.5	19 48.13	2	34.001	0 24.05	9.260	m. s.
	Metis - - - - -		12.5	25.2	20 12.18	2	24.741			Corr. Chron. + 2 1.88
	7724, B. A. C. - -	35.1	48.3		40 48.40	2	34.541	0 22.90	9.211	α δ
	(° 10) - - - - -			17.2	41 3.90	2	26.392			h. m. s. ° ′ ″
	Metis - - - - -	58.0	11.2		41 11.30	2	25.330			7724, B. A. C. 22 2 41.92 — 21 58 0.06
	7724, B. A. C. - -	58.3	11.4		52 11.50	2	34.415	0 22.55	9.133	
	(° 10) - - - - -		27.5	40.8	52 27.50	2	25.809			Metis — 7724, B. A. C. Δ α Δ δ
	Metis - - - - -	21.0	33.8		52 34.05	2	25.282			h. m. s. m. s. ′ ″
										Sid. T. 20 51 52.52 + 0 20.32 + 2 12.77
	7724, B. A. C. - -	54.2	7.2		20 00 7.30	2	34.621	0 22.45	9.122	Δ ρ .00 + .17
	Metis - - - - -	16.5		43.0	0 29.75	2	25.499			p — .10 + 5.15
	7724, B. A. C. - -	10.2	23.0		7 23.05	2	34.830	0 21.98	8.977	
	(° 10) - - - - -		39.5	51.5	7 39.03	2	26.581			
	Metis - - - - -	32.1	45.0	58.0	7 45.03	2	25.853			
	7724, B. A. C. - -	23.3	37.4		22 36.95	2	34.951	0 21.35	8.956	
	Metis - - - - -	45.4	58.0	11.5	22 58.30	2	25.995			
	7724, B. A. C. - -	59.2	11.5		33 11.85	2	35.089	0 21.25	8.968	
	(° 10) - - - - -			40.0	33 27.00	2	26.968			
	Metis - - - - -	20.1	33.1	46.1	33 33.10	2	26.121			
	7724, B. A. C. - -	29.3	43.0		45 43.10	2	35.139	0 21.00	8.717	
	(° 10) - - - - -	45.0		11.0	45 58.00	2	26.756			
	Metis - - - - -		4.0	17.0	46 4.10	2	26.422			
	7724, B. A. C. - -	49.3	2.5		21 14 2.60	2	35.123	0 19.50	8.452	
	(° 10) - - - - -		19.0	31.0	14 19.10	2	27.022			
	Metis - - - - -			35.0	15 22.10	2	26.671			
	7724, B. A. C. - -	31.2	44.3		21 44.40	2	35.192	0 19.65	8.377	
	(° 10) - - - - -		1.0		22 1.10	2	27.201			
	Metis - - - - -	50.8	4.0		22 4.05	2	26.815			
	7724, B. A. C. - -	8.0	21.5		32 21.60	2	35.140	0 18.50	8.290	
	Metis - - - - -		40.0		32 40.10	2	26.850			
	7724, B. A. C. - -	48.1	1.5		39 1.60	2	32.279	0 17.00	7.865	
	Metis - - - - -		18.5	31.5	39 18.60	2	24.414			
	7724, B. A. C. - -	33.7	47.1		42 47.20	2	32.446	0 16.90	7.915	
	Metis - - - - -		4.0	16.5	43 4.10	2	24.531			
	7724, B. A. C. - -	53.1	9.0		22 50 9.10	2	32.476	0 16.00	7.826	Night very clear and serene —— A. 10.
	Metis - - - - -		25.0	38.0	50 25.10	2	24.650			
	7724, B. A. C. - -	45.1	57.8	11.0	54 57.97	2	32.272	+ 0 16.20	+ 7.641	
	Metis - - - - -		14.0	27.3	55 14.17	2	24.631			
10	Metis - - - - -	49.1	1.7	15.1	19 46 1.97	2	37.551			
	7724, B. A. C. - -	16.0	30.1	42.5	46 29.53	2	36.062	— 0 27.56	— 1.489	
	Metis - - - - -	57.2	10.3	24.2	50 10.57	2	37.635			
	7724, B. A. C. - -	25.3	38.2	50.7	50 38.07	2	36.247	0 27.50	1.388	
	Metis - - - - -	42.8	56.7	9.7	53 56.40	2	37.922			
	7724, B. A. C. - -		24.0	37.2	54 23.80	2	36.455	— 0 27.40	— 1.467	
	(° 10) . - - - -			53.2	54 39.80	2	28.400			

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.		Mic.	Planet—Star. Δα	Δ mic.	RESULTS.
1849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
Sept. 10	Metis - - - - -	25.7	38.1	51.5	19 59 38.43	2	37.905			
	7724, B. A. C. - -	53.2	6.5	19.5	20 0 6.40	2	36.430	— 0 27.97	— 1.475	
	Metis - - - - -	45.5	59.2	12.5	3 59.07	2	38.190			
	7724, B. A. C. - -	14.0	27.0	40.5	4 27.17	2	36.475	0 28.10	1.715	m. s.
	Metis - - - - -	53.1	6.7	19.2	10 6.33	2	37.911			Corr. Chron. + 2 3.10
	7724, B. A. C. - -	22.1	35.2	48.1	10 35.13	2	36.176	0 28.80	1.735	
	(° 10) - - - - -		51.0	4.0	10 50.98	2	28.279			α δ
	Metis - - - - -	53.8	7.2	21.0	14 7.33	2	38.123			h. m. s. ° ′ ″
	7724, B. A. C. - -	23.0	35.7	49.1	14 35.93	2	36.422	0 28.60	1.701	7724, B. A. C. 22 2 41.92 — 21 58 0.14
	(° 10) - - - - -			4.5	14 51.31	2	28.375			
	Metis - - - - -	9.2	22.7	35.5	17 22.47	2	37.955			Metis—7724, B. A. C. Δα Δδ; h. m. s. m. s. ′ ″
	7724, B. A. C. - -	38.1	51.5	4.7	17 51.43	2	36.398	0 28.96	1.557	Sid. T. 20 16 33.99 —0 28.49 —0 25.67
	(° 10) - - - - -			20.1	18 6.91	2	28.341			Δρ .00 — .03
	Metis - - - - -	58.5	11.5	24.5	21 11.50	2	38.275			p — .15 + 5.04
	7724, B. A. C. - -	26.3		53.0	21 39.65	2	36.445	0 28.15	1.830	
	(° 10) - - - - -			9.0	21 55.81	2	28.220			
	Metis - - - - -	34.1	47.3	0.5	27 47.30	2	38.132			
	7724, B. A. C. - -	3.0	16.3	29.5	28 16.27	2	36.331	0 28.97	1.807	
	(° 10) - - - - -			45.5	28 32.31	2	28.281			
	Metis - - - - -	42.1	55.0	9.1	31 55.40	2	38.353			
	7724, B. A. C. - -	11.0	24.2	37.5	32 24.23	2	36.540	0 28.83	1.813	
	(° 10) - - - - -			53.2	32 40.01	2	28.282			
	Metis - - - - -		45.0	59.0	41 45.45	2	38.370			
	7724, B. A. C. - -	2.0	15.1	28.2	42 15.10	2	36.581	0 29.65	1.789	
	Metis - - - - -	26.2	39.3	52.5	50 39.33	2	38.518			Night clear and still.—A. 8.
	7724, B. A. C. - -	56.0	9.2	22.5	51 9.23	2	36.571	— 0 29.90	— 1.947	
	(° 10) - - - - -		25.1	38.5	51 25.18	2	28.220			
11	Metis - - - - -	49.5	1.5	15.2	21 11 2.07	2	38.623			
	(° 11) - - - - -			40.5	11 27.31	2	40.235			m. s.
	7724, B. A. C. - -	9.2	22.3	35.5	12 22.33	2	26.829	— 1 20.26	— 11.794	Corr. Chron. + 2 5.33
	Metis - - - - -	51.7	5.1	18.5	16 5.10	2	38.800			α δ
	(° 11) - - - - -		30.0	43.4	16 30.00	3	40.490			h. m. s. ° ′ ″
	7724, B. A. C. - -	11.3	25.1	38.3	17 24.90	2	26.645	1 19.80	12.155	7724, B. A. C. 22 2 41.93 — 21 58 0.22
	Metis - - - - -	8.0	21.0	34.1	23 21.07	2	38.790			
	(° 11) - - - - -			59.1	23 45.91	2	40.609			Metis—7724, B. A. C. Δα Δδ
	7724, B. A. C. - -	28.3	41.5	54.6	21 24 41.47	2	26.968	1 20.40	11.822	h. m. s. m. s. ′ ″
	Metis - - - - -	15.1	28.5	41.3	22 44 28.30	2	44.368			Sid. T. 22 15 4.95 —1 22.00 —3 9.33
	(° 11) - - - - -		57.0	9.5	44 56.65	3	45.430			Δρ .00 — .22
	7724, B. A. C. - -	38.1	51.0	4.2	45 51.10	2	31 876	1 22.80	12.492	p + .02 + 5.19
	Metis - - - - -	29.1	42.1	55.2	53 42.13	2	39.105			
	(° 11) - - - - -		10.5	24.0	54 10.73	3	40.242			
	7724, B. A. C. - -	52.0	5.4	19.1	55 5.50	2	26.688	1 23.37	12.417	
	Metis - - - - -	12.5	25.8	39.2	58 25 83	2	39.240			
	(° 11) - - - - -			7.2	58 54.01	3	40.200			
	7724, B. A. C. - -	36.5	49.5	2.4	59 49.47	2	26.501	1 23.64	12.739	
	Metis - - - - -		52.5	6.0	23 3 52.82	2	39.229			
	(° 11) - - - - -		21.5	35.0	4 20.82	3	40.131			Night clear and still.—A. 10.
	7724, B. A. C. - -	3.7	16.5	29.5	5 16.57	2	26.430	— 1 23.75	— 12.799	

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α.	Δ mic.	RESULTS.
1849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
Sept. 12	Metis - - - - - -	59.7	13.1	26.2	21 18 13.00	2	59.470			m. s.
	7724, B. A. C. - -	8.1	21.3	34.5	20 21.30	2	38.630	— 2 8.30	—20.840	Corr. Chron. + 2 7.70
	Metis - - - - - -	13.5	26.8	39.8	24 26.70	2	59.551			α δ h. m. s. ° ′ ″
	7724, B. A. C. - -	22.1	35.3	48.7	26 35.37	2	38.691	2 8.67	20.860	7724, B. A. C. 22 2 41.93 — 21 58 0.30
	Metis - - - - - -	50.4	3.7	17.0	22 13 3.70	3	29.711			Metis — 7724, B. A. C. Δ α Δ δ
	7724, B. A. C. - -	0.8	13.5	27.1	15 13.80	2	38.178	2 10.10	21.446	h. m. s. m. s. ′ ″
	Metis - - - - - -	54.3	8.2	21.5	22 8.00	2	59.554			Sid. T. 21 51 35.55 —2 9.47 — 5 24.57
	7724, B. A. C. - -	5.2	19.0	32.2	24 18.80	2	38.241	— 2 10.80	—21.313	Δρ .00 — 0.38 p — .01 + 5.19
										Damp, with floating clouds. A. 5.
Sept. 13	43106, Lalande - -	2.0	15.1	28.5	20 42 15.20	3	51.151	+ 0 17.73	+54.303	
	Metis - - - - - -			46.2	42 32.93	2	26.761			m. s
	7724, B. A. C. - -	13.4	27.2	39.5	45 26.70	1	28.251	— 2 53.77	—28.661	Corr. Chron. + 2 9.98
	43106, Lalande - -	38.2	51.2	4.0	21 2 51.13	3	42.940	+ 0 17.20	+54.013	δ
	Metis - - - - - -		8.1	21.5	3 8.33	1	48.991			h. m. s. ° ′ ″
	7724, B. A. C. - -	49.5	3.0	16.0	6 2.83	1	19.861	— 2 54.50	—29.130	43106, Lalande 21 59 30.12 —22 19 18.58
	43106, Lalande - -	0.8	14.1		14 14.08	3	43.079	+ 0 16.65	+54.151	7724, B. A. C. 22 2 41.93 —21 58 0.37
	Metis - - - - - -		31.0	43.7	14 30.73	1	48.992			Metis — 43106, Lalande. Δ α Δ δ
	7724, B. A. C. - -	12.5	25.7	39.0	17 25.73	1	19.810	— 2 55.00	—29.182	h. m. s. s. ′ ″
	43106, Lalande - -	45.0	58.0		22 57 58.02	3	42.116	+ 0 13.75	+53.539	Sid. T. 21 31 45.92 +0 16.33 +13 50.05
	Metis - - - - - -		11.7	24.2	58 11.77	1	48.641			Δρ .00 0.99 p — .04 + 5.17
	7724, B. A. C. - -	57.3	9.0	22.7	23 1 9.67	1	18.742	— 2 57.90	—29.899	Metis — 7724, B. A. C.
Sept. 14	Metis - - - - - -	16.1		42.5	19 14 29.30	2	34.260			h. m. s. m. s. ′ ″ Sid. T. 21 31 45.92 —2 55.29 — 7 29.12
	43106, Lalande - -		53.5	7.1	14 53.68	3	51.445	— 0 24.38	+47.098	Δρ .00 — 0.53
	7724, B A. C. - -	52.7	6.4	18.7	18 5.93	1	28.301	3 36.63	—36.110	p — .04 + 5.17
										Damp and misty. A. 6.
	Metis - - - - - -	20.8	33.8	47.5	30 34.03	2	32.358			
	43106, Lalande - -		0.0	13.5	31 0.13	3	49.690	0 26.10	+47.245	
	7724, B. A. C. - -	58.7	12.0	25.6	34 12.10	1	26.390	3 38.07	—36.119	m. s.
	Metis - - - - - -	58.1	11.5	24.8	44 11.47	2	27.485			Corr. Chron. — 0 46.45
	43106, Lalande - -		37.5	50.7	44 37.96	3	44.941	0 26.49	+47.369	α δ
	7724, B. A. C. - -	35.5	49.1	2.5	47 49.03	1	21.950	3 37.56	—35.686	h. m. s. ° ′ ″
	Metis - - - - - -	21.1	35.1		57 34.67	1	59.313			43106, Lalande 21 59 30.12 —22 19 18.66
	43106, Lalande - -		1.0	13.4	58 0.62	3	46.208	0 25.95	+46.959	7724, B. A. C. 22 2 41.94 —21 58 0.44
	7724, B. A. C. - -	59.5	12.7	25.8	20 01 12.67	1	23.163	3 38.00	—36.301	Metis — 43106, Lalande. Δ α Δ δ
	Metis - - - - - -	49.2	2.0		9 2.22	1	59.453			h. m. s. s. ′ ″ Sid. T. 19 53 39.81 —0 26.19 +12 04.04
	43106, Lalande - -			42.1	9 28.83	3	46.529	0 26.61	+47.140	Δρ .04 1.19
	7724, B. A. C. - -	27.5	40.8	54.0	12 40.77	1	23.359	3 38.55	36.094	p — .17 + 4.92
										Metis — 7724, B. A. C.
	Metis - - - - - -	58.7	12.1		18 12.15	1	39.560			h. m. s. m. s. ′ ″
	43106, Lalande - -		39.0	52.0	18 38.75	3	46.467	0 26.60	+46.981	Sid. T. 19 53 39.81 —3 38.12 — 9 15.15
	7724, B. A. C. - -	37.2	50.7	4.2	21 50.70	1	23.520	3 38.55	—36.030	Δρ + .03 — 0.88 p — .17 + 4.89
	Metis - - - - - -		0.0		27 0.00	1	59.759			Clear, with light clouds. A. 8.
	43106, Lalande - -			40.5	27 27.23	3	46.630	— 0 27.23	+46.935	
	7724, B. A. C. - -	26.5	39.5	52.5	30 39.50	1	23.296	3 39.50	—36.463	
Sept. 15	Metis - - - - - -	45.7	58.7	12.1	21 17 58.83	2	37.481			m. s.
	43106, Lalande - -			25.2	19 11.93	3	·46.931	— 1 13.10	+39.363	Corr. Chron. — 0 44.87 α δ
	Metis - - - - - -	44.2	58.0	11.0	24 57.73	2	37.673			h. m. s. ° ′ ″
	43106, Lalande - -	58.1	11.0	24.1	26 11.07	3	47.613	1 13.34	39.853	43106, Lalande 21 59 30.11 —22 19 18.74 Metis — 43106, Lalande. Δ α Δ δ
	Metis - - - - - -		4.1	17.4	22 15 4.05	2	35.172			h. m. s. m. s. ′ ″
	43106, Lalande - -		19.1	32.5	16 19.10	3	45.156	1 15.05	39.897	Sid. T. 21 49 6.01 —1 14.21 +10 10.30
	Metis - - - - - -	9.7	23.1	35.9	21 22.90	2	35.409			Δρ .00 0.72
	43106, Lalande - -	25.0	38.1	51.7	22 38.27	3	45.198	— 1 15.37	+39.702	p — .00 + 5.14
	7724, B. A. C. - -	36.5	49.5	2.5	25 49.50	1	22.401			

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.	RESULTS.
1849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	m. s,
Sept. 16	Metis	42.8	56.1	9.2	21 21 56.03	1	37.618			Corr. Chron. −0 41.34
	43106, Lalande . .	38.1	51.5	5.0	23 51.53	2	41.873	−1 55.50	+34.406	α δ
	Metis	53.4	6.5	20.1	33 6.67	1	37.571			h. m. s. ° ′ ″
	43106, Lalande . .	49.2	2.3	16.0	35 2.50	2	41.822	1 55.83	34.402	43106, Lalande 21 59 30.10 −22 19 18.82
										Metis—43106, Lalande. Δα Δδ
	Metis	36.2	49.3	2.5	41 49.33	1	37.450			h. m. s. m. s. ′ ″
	43106, Lalande . .	33.1	46.5	59.7	43 46.43	2	41.841	−1 57.10	+34.542	Sid. T. 21 31 36.00 −1 56.14 + 8 49.53
										Δρ .00 0.63
										p − .04 + 5.14
										Clear and warm.—A. 6.
Sept. 18	Metis		16.1		21 47 16.16	1	44.371			
	43106, Lalande . .	21.5	34.5	48.2	50 34.73	2	39.912	−3 18.57	+25.692	m. s.
	Metis	36.1			22 1 49.21	1	44.479			Corr. Chron. −0 39.59
	43106, Lalande . .	55.2	8.1	21.3	5 8.20	2	39.912	3 18.99	25.584	α δ
										h. m. s. ° ′ ″
										43106, Lalande 21 59 30.08 −22 19 19.00
	Metis			49.2	13 35.98	1	44.719			
	43106, Lalande . .	43.0	55.7	9.0	16 55.90	2	39.912	3 19.92	25.344	Metis—43106, Lalande Δα Δδ
	Metis	59.5	13.0	26.1	24 12.87	1	44.307			h. m. s. m. s. ′ ″
	43106, Lalande . .	18.5	32.1	44.8	27 31.80	2	39.912	3 18.93	25.756	Sid. T. 22 12 48.07 −3 19.24 + 6 33.36
										Δρ .99 0.46
										p + .02 + 5.08
	Metis		24.1	37.2	40 24.10	1	44.258			
	43106, Lalande . .	30.8	43.6	57.3	43 43.90	2	39.683	−3 19.80	+25.576	A—7.
										m. s.
Oct. 13	42700, Lalande . .	22.1	34.9	47.9	21 8 34.97	3	41.737	+1 42.35	+67.120	Corr. Chron. +0 13.03
	Metis		17.5	30.0	10 17.32	1	34.681			α δ
	42700, Lalande . .	11.3	24.7	37.9	27 24.63	3	41.852	+1 41.87	67.045	h. m. s. ° ′ ″
	Metis	53.5		19.5	29 6.50	1	34.871			42700, Lalande 21 47 14.11 −21 50 48.05
	7649, B. A. C. . .	16.0	29.7	43.2	30 29.63	3	53.311	−1 23.13	78.504	7649, B. A. C. 21 50 20.83 −21 53 46.47
										Metis—42700, Lalande Δα Δδ
	42700, Lalande . .	30.9	44.1	57.6	44 44.00	3	41.646	+1 42.35	67.080	h. m. s. m. s. ′ ″
	Metis	13.2		39.5	46 26.35	1	34.630			Sid. T. 21 42 41.63 +1 42.15 +17 13.22
	7649, B. A. C. . .	36.3	49.1	2.2	47 49.20	3	53.481	−1 22.85	78.915	Δρ .00 1.18
										p − .01 + 4.47
	42700, Lalande . .	2.5	16.1	28.9	56 15.83	3	41.619	+1 42.42	67.274	Metis—7649. B. A. C.
	Metis	45.1		11.4	57 58.25	1	34.409			h. m. s. m. s. ′ ″
	7649, B. A. C. . .	8.2		34.7	59 21.45	3	53.378	−1 23.20	79.033	Sid. T. 21 50 44.45 −1 23.06 +20 12.65
	42700, Lalande . .	39.7	52.8	6.0	22 6 52.83	3	41.797	+1 41.77	67.578	Δρ .00 1.38
	Metis	21.5		47.7	8 34.60	1	34.283			p .00 + 4.48
	7649, B. A. C. . .	44.9	57.7	10.4	9 57.67	3	53.334	−1 23.07	+79.115	Vapors—A. 6.
										m. s.
Oct. 14	(5)	33.4		59.5	21 22 46.45	2	41.572	+0 51.22	−5.310	Corr. Chron. +0 14.17
	Metis	24.2	38.0	50.8	23 37.67	2	46.882			α δ
	(6)	16.1	29.7	43.3	24 29.70	2	35.886	−0 52.03	10.996	h. m. s. ° ′ ″
	(5)	25.5	38.5		31 38.87	2	41.587	+0 50.70	5.303	(5) 21 48 11.38 −21 28 28.57
	Metis	16.2	29.2	43.3	32 29.57	2	46.890			(6) 21 49 55.94 −21 26 57.07
	(6)		21.7	34.2	33 21.27	2	35.973	−0.51.70	10.917	Metis— (5) Δα Δδ
										h. m. s. m. s. ′ ″
	(5)	1.3	14.5	28.0	38 14.60	2	41.786	+0 51.50	5.264	Sid. T. 21 36 10.42 +0 51.17 −1 19.70
	Metis		6.5	19.0	39 6.10	2	47.050			Δρ .00 − 0.09
	(6)		58.2	11.2	39 58.05	2	36.043	−0 51.95	11.007	p − .02 + 4.42
										Metis— (6)
	(5)	27.5	40.7	53.0	47 40.40	2	42.148	+0 51.27	4.863	h. m. s. m. s. ′ ″
	Metis	18.5	31.7	44.8	48 31.67	2	47.011			Sid. T. 21 36 10.42 −0 51.91 −2 47.84
	(6)	10.3	23.5	37.1	49 23.63	2	36.251	−0 51.96	−10.760	Δρ .00 − 0.19
										p − .02 + 4.42
										Vapors—A. 8.
Oct. 15	(5)	49.2		14.5	21 51 1.85	3	39.429	+0 59.81	+11.046	
	Metis			15.0	52 1.66	3	28.383			
	(6)		45.3	58.1	52 45.39	3	33.471	−0 43.73	+5.088	

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.
1849.		s.	s.	s	h. m. s.	w.	revs.	m. s.	revs.
Oct. 15	(5)	13.5		39.0	21 59 26.25	3	39.291	+ 1 00.00	+11.099
	Metis		26.2	39.5	22 0 26.25	3	28.192		
	(6)	56.2	9.7	22.3	1 9.40	3	33.347	− 0 43.15	5.155
	(5)	34.5		0.2	7 47.35	3	39.381	+ 1 00.02	11.220
	Metis	34.1	47.5	0.5	8 47.37	3	28.161		
	(6)	17.6	30.5	44.2	9 30.77	3	33.468	− 0 43.40	5.307
	(5)	13.2		39.2	16 26.20	3	39.442	+ 1 00.67	11.402
	Metis	13.4	26.7	40.5	17 26.87	3	28.040		
	(6)	57.2	9.5	23.2	18 9.97	3	33.510	− 0 43.10	+ 5.470

Corr. Chron.		m. s. + 0 16.24	
		α h. m. s.	δ ° ′ ″
(5)		21 48 11.36	−21 28 28.68
(6)		21 49 55.92	−21 26 57.17
Metis—(5)	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	22 4 56.78	+1 0.12	+2 52.04
	Δρ	.00	0.19
	p	+ .02	+ 4.42
Metis—(6)		m. s.	′ ″
Sid. T.	22 4 56.78	−0 43.34	+1 20.77
	Δρ	.00	0.09
Misty—A. 6	p	+ .02	+ 4.42

DATE.	OBJECTS.	A.	B.	C.	Mean.	w.	Mic.	Δα	Δ mic.
24	(7)		11.0	24.2	22 33 10.95	2	47.219	+ 0 50.05	+ 2.959
	Metis	48.0		14.0	34 1.00	2	44.260		
	(7)		17.2	29.8	23 3 17.20	2	48.690	0 49.10	3.281
	Metis		6.0	19.2	4 6.30	2	45.409		
	(7)	54.2		20.5	0 41 7.35	2	46.610	0 51.10	4.479
	Metis		58.5	11.5	41 58.45	2	42.131		
	(7)	56.5	10.1	23.0	58 9.87	2	45.581	0 51.30	5.363
	Metis	48.0	1.0	14.5	59 1.17	2	40.218		
	(7)		8.5	21.0	1 9 8.45	2	45.957	+ 0 50.55	+ 6.218
	Metis		59.0		9 59.00	2	39.739		

Corr. Chron.		m. s. + 0 30.93	
		α h. m. s.	δ ° ′ ″
(7)		21 50 58.00	−20 43 9.11
Metis—(7)	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	0 6 20.11	+0 50.42	+1 8.55
	Δρ	.00	0.10
	p	+ .15	+ 3.94

High wind and noise—A. 5.

DATE.	OBJECTS.	A.	B.	C.	Mean.	w.	Mic.	Δα	Δ mic.
25	(7)	34.0	47.5		20 51 47.32	3	42.746	+ 1 13.05	+22.679
	Metis	47.1	0.5	13.5	53 0.37	2	49.980		
	(7)	46.0	58.5		21 6 58.87	3	42.721	1 13.40	22.912
	Metis	59.3	12.0	25.5	8 12.27	2	49.722		
	(7)	33.0	46.5		18 46.65	3	42.878	+ 1 13.80	+23.101
	Metis		0.3	13.0	20 0.45	2	49.690		
	(8)		33.0	46.2	20 33.15	1	53 410	− 0 32.70	−26.431
	(7)	1.5	14.0		32 14.15	3	42.731	+ 1 14.02	+23.341
	Metis	15.2	28.3	41.0	33 28.17	2	49.303		
	(8)			14.0	34 0.67	1	53.521	− 0 32.50	−25.933
	(7)	30.1	43.0		41 43.15	3	42.631	+ 1 14.18	+23.264
	Metis	43.9	57.1	11.0	42 57.33	2	49.280		
	(8)	17.0	30.1	43.0	43 30.03	1	53.486	− 0 32.70	−25.945
	(7)	43.2	56.1		49 56.25	3	42.733	+ 1 13.68	+23.707
	Metis	57.3	9.5	23.0	51 9.93	2	48.939		
	(8)		43.0	56.1	51 43.23	1	53.343	− 0 33.30	−25.747
	(7)		1.0		58 1.15	3	42.422	+ 1 14.72	+23.525
	Metis	2.8	15.7	29.1	59 15.87	2	48.810		
	(8)		48.0	1.2	59 48.07	1	53.331	− 0 32.20	−25.630

Corr. Chron.		m. s. + 0 32.78	
		α h. m. s.	δ ° ′ ″
(7)		21 50 57.98	−20 43 9.20
(8)		21 52 44.80	−20 30 26.81
Metis—(7)	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	21 30 17.69	+1 13.84	+5 56.90
	Δρ	.00	0.38
	p	− .02	+ 4.13
Metis—(8)		m. s.	′ ″
Sid. T.	21 41 57.13	−0 32.68	−6 38.69
	Δρ	.00	+ 0.43
	p	− .01	+ 4.13

Hazy; moonlight—A. 4.

DATE.	OBJECTS.	A.	B.	C.	Mean.	w.	Mic.	Δα	Δ mic.
27	42813, Lalande	16.5	29.5	42.0	21 28 29.33	2	34.537	+ 2 37.54	−25.631
	(8)		43.2	57.0	30 43.67	3	49.310	0 23.20	+19.055
	Metis	54.0	6.5	20.1	31 6.87	3	30.255		
	42813, Lalande	24.7	38.1	51.0	22 57 37.93	1	40.600	2 38.57	−24.357
	(8)	39.5		5.0	22 59 52.25	2	54.253	+ 0 24.25	+19.447
	Metis	4.0		29.0	23 0 16.50	2	34.806		

Corr. Chron.		m. s. + 0 37.14	
		α h. m. s.	δ ° ′ ″
42813, Lalande.		21 50 30.46	−20 19 17.19
(8)		21 52 44.76	−20 30 26.99
Metis—42813, Lalande.	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	22 55 18.05	+2 39.32	−6 14.57
	Δρ	− 0.01	− 0.42
	p	+ .07	+ 4.04

(Continued.)

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic. w.	rev.	Planet—Star. Δ α	Δ mic.
1849.		s.	s.	s.	h. m. s.	w.	rev.	m. s.	rev.
t. 27	42813, Lalande	57.5	10.2	22.9	23 9 10.20	1	40.380	+ 2 40.63	— 23.996
	(8)	12.1	25.0	37.8	11 24.63	2	54.154	0 26.20	+ 19.929
	Metis	39.0	50.4	3.1	11 50.83	2	34.225		
	42813, Lalande	10.7	24.1	37.0	17 23.93	1	40.328	2 39.50	— 23.992
	Metis	50.0	3.2	17.1	20 3.43	2	34.169		
	42813, Lalande	13.1	26.5	40.1	27 26.57	1	40.160	2 40.36	— 23.866
	(8)	28.1	41.0	53.0	29 40.70	2	53.899	+ 0 26.23	+ 20.024
	Metis	54.1	7.3	19.5	30 6.93	2	33.875		
v. 2	Metis			3.0	21 30 49.80	2	35.640		
	(9)	39.5	52.0	6.0	30 52.50	2	32.299	— 0 2.70	— 3.341
	Metis		55.0	8.0	44 55.00	2	35.290		
	(9)		56.5	9.5	44 56.50	2	32.487	0 1.50	2.803
	Metis	16.0	29.0	42.0	56 29.00	2	34.878		
	(9)	17.5	31.5	44.0	56 31.00	2	32.271	— 0 2.00	2.647
	(9)	47.0	0.0	13.0	22 58 00.00	2	35.931	+ 0 1.20	1.384
	Metis	48.1	1.3	14.2	58 1.20	2	37.315		
	(9)	46.0	59.0		23 0 59.00	2	35.990	0 1.20	1.282
	Metis	47.3	0.1		1 0.20	2	37.272		
	(9)	47.0	0.0	13.0	3 0.00	2	35.960	0 1.13	1.353
	Metis	48.1	1.2	14.1	3 1.13	2	37.313		
	(9)	55.0	8.0		7 8.00	2	35.691	0 1.15	1.519
	Metis	56.1	9.2		7 9.15	2	37.210		
	(9)	53.0	6.1	19.0	9 6.03	2	35.701	0 1.27	1.109
	Metis	54.2	7.4	20.3	9 7.30	2	36.810		
	(9)	37.1		3.0	11 50.05	2	35.658	0 1.55	1.331
	Metis	38.5		4.7	11 51.60	2	36.989		
	(9)	39.7		5.3	13 52.50	2	35.805	0 1.60	1.043
	Metis	41.2		7.0	13 54.10	2	36.848		
	(9)	46.2	59.0	12.0	15 59.07	2	35.723	0 1.46	0.928
	Metis	47.7	0.3	13.6	16 0.53	2	36.651		
	(9)	40.2	53.0	6.0	18 53.07	2	35.722	0 1.76	1.011
	Metis	41.8	54.8	7.9	18 54.83	2	36.733		
	(9)	37.0		3.0	20 50.00	2	35.660	0 1.60	1.097
	Metis	38.5		4.7	20 51.60	2	36.757		
	(9)	11.0	24.7	37.0	34 24.00	3	53.519	+ 0 2.17	0.822
	Metis	13.0	26.3	39.2	34 26.17	3	54.341		
	43040, Lalande		21.0	34.0	35 21.02	1	18.761	— 0 54.40	95.644
	(9)	34.1	48.3		42 48.30	3	53.260	+ 0 2.20	0.718
	Metis	36.3	50.5		42 50.50	3	53.978		
	(9)	41.0	53.3		51 53.53	3	53.242	+ 0 2.60	0.587
	Metis	43.2	56.2		51 56.13	3	53.829		
	43040, Lalande	37.5	50.1	3.1	52 50.23	1	18.527	— 0 54.10	— 95.366
3	Metis			29.0	23 3 15.65	3	44.762		
	43040, Lalande			45.0	3 31.65	1	84.380	— 0 16.00	— 70.446

RESULTS.

Metis — (8)

		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	22 48 57.42	+ 0 24.97	+ 5 1.49
	Δ ρ	.00	+ 0.33
	p +	.06	+ 4.05

Warm and hazy—A. 5.

Corr. Chron. m. s. + 0 47.17

	α	δ
	h. m. s.	° ′ ″
(9)	21 56 36.06	— 19 48 3.28
43040, Lalande	21 57 31.11	— 19 23 44.79

Metis—(9)

		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	23 0 52.05	+ 0 0.92	— 0 22.07
	Δ ρ	.00	— 0.03
	p +	.07	+ 3.86

Metis—43040, Lalande.

	h. m. s.	m. s.	′ ″
Sid. T.	23 43 58.32	— 0 54.25	— 24 28.03
	Δ ρ —	0.05	— 1.80
	p +	.11	+ 3.78

Misty—A. 6.

(Continued.)

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.	RESULTS.
1849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
Nov. 3	Metis		20.2	32.8	23 10 20.52	3	44.329			Corr. Chron. m. s. + 0 49.06
	43040, Lalande . .			49.7	10 36.35	1	33.999	− 0 15.83	−70.394	α h. m. s. δ ° ′ ″
	Metis	59.1	12.1		20 12.41	3	44.013			43040, Lalande. 21 57 31.11 — 19 23 44.89
	43040, Lalande . .		28.0	41.0	20 28.31	1	33.906	0 15.90	70.171	Metis—43040, Lalande. Δ α Δ δ
	Metis	26.7	39.1	52.7	27 39.50	3	44.170			h. m. s. m. s. ′ ″
	43040, Lalande . .			8.2	27 54.85	1	33.967	− 0 15.35	70.267	Sid. T. 23 16 11.08 — 0 15.77 — 18 0.90 Δ ρ — .02 1.22 Cloudy—A. 3. p + .08 — 3.81
4	43040, Lalande . .	17.50	30.7		21 28 30.70	1	33.744	+ 0 22.80	−46.145	
	Metis		53.5		28 53.50	2	49.738			Corr. Chron. m. s. + 0 50.90
	43040, Lalande . .	32.10	45.1	58.1	33 45.10	1	33.750	0 21.95	45.996	
	Metis		7.0	20.1	34 7.05	2	49.595			α h. m. s. δ ° ′ ″
	43040, Lalande . .	59.5	12.8		41 12.80	1	33.813	0 22.40	45.911	43040, Lalande. 21 57 31.10 — 19 23 44.97
	Metis		35.2	47.0	41 35.20	2	49.573			
	43040, Lalande . .	48.3	1.2	14.1	45 1.20	1	33.783	0 22.10	45.910	Metis—43040, Lalande. Δ α Δ δ h. m. s. m. s. ′ ″
	Metis			36.2	45 23.30	2	49.542			Sid. T. 22 0 17.52 + 0 22.70 — 11 40.35
	43040, Lalande . .	22.3	35.1		49 35.10	1	33.710	0 23.20	45.781	Δ ρ .00 — 0.72
	Metis		58.3	10.8	49 58.30	2	49.340			p .00 + 3.85
	43040, Lalande . .	40.7	54.7		53 54.70	1	33.814	0 22.40	45.728	
	Metis		17.1	29.9	54 17.10	2	49.391			
	43040, Lalande . .	46.7	0.1		59 0.10	1	34.162	0 22.00	45.534	
	Metis	9.0		35.2	59 22.10	2	49.545			
	43040, Lalande . .	14.2	27.1		22 3 27.10	1	34.090	0 23.00	45.560	
	Metis		50.1	3.3	3 50.10	2	49.499			
	43040, Lalande . .	34.2	47.1		7 47.10	1	34.211	0 23.20	45.270	
	Metis		10.3	23.5	8 10.30	2	49.330			
	43040, Lalande . .	19.7	33.2		13 32.67	1	34.121	0 23.00	45.393	
	Metis	43.2	55.7	8.1	13 55.67	2	49.363			
	43040, Lalande . .	8.1	21.1		18 21.10	1	34.121	0 22.60	45.131	
	Metis			57.1	18 43.70	2	49.101			
	43040, Lalande . .	15.2	28.1		24 28.10	1	34.109	0 23.00	45.115	
	Metis	38.0		4.2	24 51.10	2	49.073			
	43040, Lalande . .	22.2	35.2		29 35.20	1	34.068	0 23.50	44.835	Light clouds—A. 6.
	Metis	45.7		11.7	29 58.70	2	48.752			
5	43040, Lalande . .	13.2	26.1	39.0	22 56 26.10	1	41.072	1 6.30	17.677	
	Metis	19.2	32.5	45.5	57 32.40	1	58.749			Corr. Chron. m. s. + 0 52.87
	43040, Lalande . .	39.5	52.3	5.2	23 10 52.33	1	40.769	1 6.90	17.641	α δ
	Metis	46.2	59.1	12.4	11 59.23	2	28.259			h. m. s. ° ′ ″
	43040, Lalande . .	18.3	31.0	44.0	17 31.10	1	40.711	1 7.07	17.522	43040, Lalande. 21 57 31.09 — 19 23 45.06
	Metis	25.0	38.5	51.0	18 38.17	1	58.233			Metis—43040, Lalande. Δ α Δ δ
	43040, Lalande . .	40.3	53.0	6.2	27 53.17	1	40.729	1 7.90	17.223	h. m. s. m. s ′ ″
	Metis	48.0	1.2	14.0	29 1.07	1	57.952			Sid. T. 23 28 9.54 + 1 7.40 — 4 25.29 Δ ρ .00 — .30
	43040, Lalande . .	36.2	49.2		35 49.32	1	40.741	1 7.95	16.999	p + .09 + 3.74
	Metis	44.1	57.1	10.5	36 57.27	1	57.740			
	43040, Lalande . .	49.3	2.0		43 2.00	1	40.526	1 7.50	16.970	
	Metis	57.0			44 9.50	1	57.496			Misty and warm, with clouds—A. 6.
	43040, Lalande . .	18.2	30.7	43.8	51 30.90	1	40.485	+ 1 8.17	−16.785	
	Metis	26.0	39.2	52.0	52 39.07	1	57.270			

METIS.

Date.	Objects.	A.	B.	C.	Mean.	w.	Mic.	Planet—Star. Δα	Δ mic.
849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
r. 6	43040, Lalande - -	13.2	26.1	39.0	22 9 26.10	2	51.699	+ 1 48.97	+ 8.346
	Metis - - - - -	2.0	15.5	27.7	11 15.07	2	43.353		
	7711, B. A. C. - -	25.3	38.0	51.0	12 38.10	1	48.033	— 1 23.03	—25.471
	43040, Lalande - -	48.3	0.7	14.1	22 1.03	2	51.422	+ 1 48.57	+ 8.391
	Metis - - - - -	36.2		3.0	23 49.60	2	43.031		
	7711, B. A. C. - -	0.3	13.2	26.7	25 13.40	1	47.959	— 1 23.80	—25.223
	43040, Lalande - -	5.2	18.1	31.0	41 18.10	2	51.201	+ 1 49.00	+ 8.857
	Metis - - - - -		7.1	20.0	43 7.10	2	42.344		
	7711, B. A. C. - -	16.2	29.4	42.3	44 29.30	1	47.776	— 1 22.20	—24.719
	43040, Lalande - -	44.1	57.0	9.8	52 56.97	2	51.192	+ 1 50.00	+ 9.013
	Metis - - - - -		47.1	59.7	54 46.97	2	42.179		
	7711, B. A. C. - -	56.1	9.3	21.7	56 9.03	1	47.653	— 1 22.06	—24.677
	43040, Lalande - -	54.0	7.2	19.7	23 12 6.97	2	51.012	+ 1 50.30	+ 9.334
	Metis - - - - -	44.2	57.2	10.4	13 57.27	2	41.678		
	7711, B. A. C. - -	6.1	19.2	32.1	15 19.13	1	47.591	— 1 21.86	—24.238

Results.

Corr. Chron. +0 54.80 s.

	α h. m. s.	δ ° ′ ″
43040, Lalande	21 57 31.07	—19 23 45.12
7711, B. A. C.	22 0 43.93	—19 15 8.70

Metis — 43040, Lalande.

	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	22 42 18.00	+ 1 49.37	+ 2 15.08
Δρ		.00	0.14
p		+ .05	+ 3.78

Metis — 7711, B. A. C.

	h. m. s.	m. s.	′ ″
Sid. T.	22 42 18.00	— 1 22.58	— 6 22.21
		.00	— 0.39
		+ .05	+ 3.78

Misty. A. 6.

Date.	Objects.	A.	B.	C.	Mean.	w.	Mic.	Δα	Δ mic.
r. 7	43040, Lalande - -	21.8	35.2	48.3	22 25 35.10	1	52.018	+ 2 34.00	—23.895
	Metis - - - - -	56.2	9.1	22.0	28 9.10	2	45.862		
	7711, B. A. C. - -	34.3	46.1		28 46.65	2	48.410	— 0 37.55	+ 2.548
	43040, Lalande - -	13.3	26.2	39.5	37 26.33	1	51.458	+ 2 34.77	—23.843
	Metis - - - - -	48.2	1.0	14.1	40 1.10	2	45.150		
	7711, B. A. C. - -	25.1	39.2	51.3	40 38.53	2	47.823	— 0 37.43	+ 2.673
	Metis - - - - -		41.7	54.6	45 41.63	2	44.655		
	7711, B. A. C. - -	6.1	19.2	32.1	46 19.13	2	47.637	0 37.50	2.982
	Metis - - - - -	25.8	38.7	51.3	50 38.60	2	44.543		
	7711, B. A. C. - -	2.7	15.9	29.3	51 15.97	2	47.569	0 37.37	3.026
	Metis - - - - -	39.7	52.5	5.7	53 52.63	2	44.403		
	7711, B. A. C. - -	16.2	29.4	42.7	54 29.43	2	47.582	0 36.80	3.179
	Metis - - - - -	30.7	43.9	56.3	56 43.63	2	44.380		
	7711, B. A. C. - -	7.5	20.3	33.0	57 20.27	2	47.513	0 36.64	3.133
	Metis - - - - -	18.2	31.3	44.0	23 13 31.17	2	43.890		
	7711, B. A. C. - -	55.0	7.1	21.0	14 7.76	2	47.591	0 36.53	3.701
	Metis - - - - -	29.5	42.3	55.0	19 42.27	2	43.750		
	7711, B. A. C. - -	5.1	18.3	31.5	20 18 30	2	47.448	— 0 36.03	+ 3.698

Results.

Corr. Chron. +0 56.81 m. s.

	α h. m. s.	δ ° ′ ″
7711, B. A. C.	22 0 43.91	—19 15 8.73

Metis — 7711, B. A. C.

	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	22 54 29.33	— 0 36.98	+ 0 47.91
Δρ		.00	0.05
p		+ .06	+ 3.74

Misty. A. 6.

Date.	Objects.	A.	B.	C.	Mean.	w.	Mic.	Δα	Δ mic.
r. 10	7711, B. A. C. - -		9.7		22 11 9.70	3	63.742	+ 1 43.20	+87.188
	Metis - - - - -			6.0	12 52.90	1	36.618		
	7711, B. A. C. - -	31.0		58.2	20 44.60	3	57.885	1 44.43	87.209
	Metis - - - - -	16.0	29.0	42.1	22 29.03	1	30.740		
	7711, B. A. C. - -	39.3	52.5	5.7	29 52.50	3	57.923	1 44.60	87.534
	Metis - - - - -	24.2		50.0	31 37.10	1	30.453		
	7711, B. A. C. - -	12.3	25.1	38.2	38 25.20	3	57.838	1 44.85	87.584
	Metis - - - - -	57.1		23.0	40 10.05	1	30.318		
	7711, B. A. C. - -	7.1	20.3	32.9	46 20.10	3	57.938	+ 1 45.73	+87.644
	Metis - - - - -	52.5	6.0	19.0	48 5.83	1	30.358		

Results.

Corr. Chron. +1 3.72 m. s.

	α h. m. s.	δ ° ′ ″
7711, B. A. C.	22 0 43.86	— 19 15 8.61

Metis — 7711, B. A. C.

	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	22 32 6.70	+ 1 44.56	+22 23.95
Δρ		.01	1.34
p		+ .03	+ 3.70

High wind and fleecy black clouds. A. 7.

METIS.

DATE.	OBJECTS.	Observed times of transit. A	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.	RESULTS.
1849.		s.	s.	s.	h m. s.	w.	revs.	m. s.	revs.	m. s.
Nov. 12	Metis - - - - - -	27.5	40.5		22 40 40.47	1	41.892			Corr. Chron. +1 5.35
	43288, Lalande - -			3.0	40 50 10	2	44.448	— 0 9.63	+32.707	α δ; h. m. s. ° ′ ″
										43288, Lalande 22 4 20.25 —18 45 58.80
	Metis - - - - - -		25.5	38.0	52 25.17	1	41.625			
	43288, Lalande - -		34.0	47.1	52 33.97	2	44.495	0 8.80	33.021	Metis — 43288, Lalande Δ α Δ δ
	Metis - - - - - -	20.0		46.2	0 43 33.10	2	38.329			h. m. s. s. ′ ″
	43288, Lalande - -	25.1	38.0	51.0	43 38.03	3	44.236	0 4.93	35.820	Sid. T. 0 21 7.20 —0 6.04 +8 54.57
										Δρ + .02 0.71
										p + .13 + 3.50
	Metis - - - - - -	5.2	18.5		46 18.50	2	38.925			
	43288, Lalande - -		23.5		46 23.50	3	44.359	0 5.00	35.347	
	Metis - - - - - -	25.2	38.0		49 38.00	2	38.883			
	43288, Lalande - -		43.0	55.5	49 43.00	3	44.181	0 5.00	35.211	
	Metis - - - - - -	18.5		44.2	53 31.35	2	38.821			
	43288, Lalande - -	23.0		49.5	53 36.25	3	44.044	0 4.90	35.136	
	Metis - - - - - -	11.0		37.2	55 24.10	2	38.490			
	43288, Lalande - -	16.0		42.5	55 29.25	3	43.998	0 5.15	35.421	
	Metis - - - - - -	31.2		57.0	58 44.10	2	38.219			
	43288, Lalande - -	36.5	49.0	1.5	58 49.00	3	43.869	— 0 4.90	35.563	Very clear.—A. 10.
Nov. 13	43288, Lalande - -	21.2	34.4	47.5	22 54 34.37	3	44.825	+ 0 43.80	62.867	m. s.; Corr. Chron. +1 7.47
	Metis - - - - -	5.0	18.5	31.0	55 18.17	1	42.022			
	43288, Lalande - -	41.2	54.1	7.0	58 54.10	3	44.766	0 44.30	62.979	α δ; h. m. s. ° ′ ″
	Metis - - - - -	25.2	39.0	51.0	59 38.40	1	41.851			43288, Lalande 22 4 20.23 —18 45 58.86
	43288, Lalande - -	22.1	35.0	48.0	23 3 35.03	3	44.856	0 44.70	63.280	Metis — 43288, Lalande Δ α Δ δ
	Metis - - - - -	7.0	19.2	33.0	4 19.73	1	41.640			h. m. s. s. ′ ″
	43288, Lalande - -	21.3	34.3	47.7	9 34.43	3	44.755	0 44.64	63.381	Sid. T. 23 8 58.29 +0 44.51 +16 12.07
	Metis - - - - -	6.0	19.2	32.0	10 19.07	1	41.438			Δρ .01 0.99
										p + .06 + 3.59
	43288, Lalande - -	47.2	0.5	12.1	14 59.93	3	44.706	0 44.50	63.448	
	Metis - - - - -	31.5	44.8	57.0	15 44.43	1	41.322			
	43288, Lalande - -	47.2	59.7	13.1	21 0.00	3	44.719	+ 0 45.10	+63.485	Very clear.—A. 10.
	Metis - - - - -	32.0		58.2	21 45.10	1	41.298			
Nov. 27	Metis - - - - -	30.8	43.1	56.0	23 48 43.30	2	43.573			m. s.
	(10) - - - - -		52.0	5.1	49 52.30	1	50.511	— 1 9.00	—23.213	Corr. Chron. +1 31.31
	Metis - - - - -	21.0	33.0	45.0	54 33.00	2	42.999			α δ
	(10) - - - - -	29.1	42.0	54.8	55 41.63	1	50.158	1 8.63	22.992	h. m. s. ° ′ ″
	Metis - - - - -	59.0	12.0	25.0	59 12.00	2	42.620			(10) 22 20 35.80 —16 25 52.59
	(10) - - - - -	7.0	20.0	33.0	0 00 20.00	1	50.108	1 8.00	22.663	Metis — (10) Δ α Δ δ
	Metis - - - - -	40.7	53.0	6.0	7 53.23	2	42.330			h. m. s. m. s. ′ ″
	(10) - - - - -	49.0	1.2	14.1	9 1.43	1	50.000	1 8.20	22.481	Sid. T. 0 3 5.64 —1 8.36 —5 49.82
										Δρ — .01 — 0.34
										p + .10 + 3.19
	Metis - - - - -	17.3	30.0	43.0	17 30.10	2	41.461			
	(10) - - - - -	25.0	38.2	51.0	18 38.07	1	49.172	— 1 7.97	—22.440	Stars blurred and unsteady.—A. 8.
Dec. 5	7836, B. A. C. - -	49.2	2.0	14.0	23 19 1.73	3	40.154	+ 6 42.00	+16.866	
	(11)	.	42.7	54.2	19 42.18	3	35.888	+ 6 1.55	+12.600	
	Metis - - - - -	31.2	44.0		25 43.73	2	53.201			(Continued.)

METIS.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.	RESULTS.
49.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
5	7836, B. A. C. - -	42.4	55.1	7.3	23 39 54.93	3	38.789	+ 6 43.95	+17.330	
	(11) - - - - - -			48.0	40 35.37	3	34.620	6 3.51	13.161	
	Metis - - - - -	26.2	39.2		46 38.88	2	51.372			
	7836, B. A. C. - -	26.1		51.0	54 38.55	3	38.781	6 43.45	17.824	
	Metis - - - - -		22.0	35.2	0 1 22.00	2	50.870			
	7836, B. A. C. - -	55.2	8.2	21.0	7 8.13	3	36.799	6 44.65	17.842	
	(11) - - - - - -			1.0	7 48.13	3	32.889	6 4.65	13.932	
	Metis - - - - -	39.5	53.2		13 52.78	2	48.870			
	7836, B. A. C. - -	19.4	32.7	45.0	19 32.37	3	36.849	6 44.45	18.241	
	(11) - - - - - -		12.0	25.0	20 12.02	3	32.637	+ 6 4.80	+14.029	
	Metis - - - - -	4.0	17.0		26 16.82	2	48.521			
6	Metis - - - - -			52.0	23 13 39.65	3	42.353			
	Weisse XXII, 640 -			10.0	13 57.65	1	36.292	— 0 18.00	—66.125	
	Weisse XXII, 644 -			15.0	14 2.65	1	38.416	0 23.00	64.001	
	Metis - - - - -	3.0	15.0		27 15.00	3	41.770			
	Weisse XXII, 640 -		33.0	45.0	27 33.00	1	36.249	0 18.00	65.585	
	Weisse XXII, 644 -		37.0	50.0	27 37.00	1	38.323	0 22.00	63.511	
	Metis - - - - -	39.2	51.7		32 51.63	3	41.600			
	Weisse XXII, 644 -	1.7	13.6	26.2	33 13.83	1	38.505	0 22.20	63.159	
	Metis - - - - -	38.9	51.7		35 51.70	3	41.490			
	Weisse XXII, 640 -		9.0		36 9.00	1	36.233	0 17.30	65.321	
	Weisse XXII, 644 -	0.2		26.0	36 13.10	1	38.445	0 21.40	63.109	
	Metis - - - - -	3.4	16.1		40 16.18	3	41.411			
	Weisse XXII, 644 -	24.3	37.1	50.0	40 37.13	1	38.374	0 20.95	63.101	
	Metis - - - - -	56.2	8.1		45 8.32	3	41.291			
	Weisse XXII, 640 -		25.0	38.1	45 24.82	1	36.180	0 16.50	65.175	
	Weisse XXII, 644 -	17.2		42.0	45 29.60	1	38.445	0 21.28	62.910	
	Metis - - - - -	21.7	34.7		51 34.72	3	41.138			
	Weisse XXII, 644 -	41.9	55.2	8.1	51 53.07	1	38.380	0 20.35	62.822	
	Metis - - - - -	3.3	16.5		54 16.50	3	40.925			
	Weisse XXII, 644 -		37.1	49.3	54 37.10	1	38.405	0 20.60	62.584	
	Metis - - - - -	47.1	59.5		57 59.50	3	40.862			
	Weisse XXII, 644 -		20.1	33.0	58 20.10	1	38.365	0 20.60	62.561	
	Metis - - - - -	37.2	49.5		0 0 49.50	3	40.645			
	Weisse XXII, 644 -		10.2	22.7	1 10.20	1	38.380	0 20.70	62.329	
	Metis - - - - -	28.2	41.0		3 41.00	3	40.568			
	Weisse XXII, 644 -		1.3	14.1	4 1.30	1	38.348	0 20.30	62.284	
	Metis - - - - -	2.1	15.0		6 15.03	3	40.513			
	Weisse XXII, 644 -	22.1	35.0	48.0	6 35.03	1	38.250	0 20.00	62.327	
	Metis - - - - -	59.0	11.5		11 11.58	3	40.518			
	Weisse XXII, 644 -	18.5	31.7	44.1	11 31.43	1	38.370	0 19.85	62.212	
	Metis - - - - -	59.7	12.6		15 12.60	3	40.254			
	Weisse XXII, 640 -		27.0	40.0	15 27.32	1	35.989	0 14.72	64.329	
	Weisse XXII, 644 -	19.7	32.0	44.5	15 32.07	1	38.273	0 19.47	62.045	
	Metis - - - - -	24.1	37.3		23 37.30	3	40.167			
	Weisse XXII, 644 -		56.1	9.0	23 56.10	1	38.258	0 18.80	61.973	
	Metis - - - - -	20.0	32.7		26 32.70	3	39.938			
	Weisse XXII, 644 -		51.7	4.0	26 51.70	1	38.182	— 0 19.00	—61.820	High wind—A. 7.

RESULTS (5th).

Corr. Chron.		m. s. +1 50.30	
		α	δ
		h. m. s.	° ′ ″
7836, B. A. C.		22 22 13.40	—15 21 7.17
(11)		22 22 53.94	—15 20 4.50
Metis—7836, B. A. C.		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	0 0 37.14	+6 43.70	+4 30.85
	Δ ρ	.00	0.25
	p	+ .08	+ 3.04
Metis—(11)			
		m. s.	′ ″
Sid. T.	23 59 58.35	+6 3.63	+3 26.45
	Δ ρ	.00	0.19
Misty—A. 7.	p	+ .08	+ 3.04

RESULTS (6th).

Corr. Chron.		m. s. +1 52.30	
		α	δ
		h. m. s.	° ′ ″
Weisse XXII, 640.		22 30 28.55	—14 50 13.24
Weisse XXII, 644.		22 30 33.04	—14 50 47.65
Metis—Weisse XXII, 640.		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	23 41 17.75	—0 16.90	—16 43.33
	Δ ρ	— .01	— .85
	p	+ .06	+ 3.04
Metis—Weisse XXII, 644.			
		m. s.	′ ″
Sid. T.	23 56 00.61	—0 20.66	—16 3.33
	Δ ρ	— 0.01	— 0.85
	p	+ .11	+ 3.02

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.	RESULTS.
1849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
Dec. 11	Metis		34.2	47.0	23 19 34.13	2	36.351			m. s.
	Weisse XXII, 815 .		10.0	23.1	21 10.13	2	43.050	— 1 36.00	+ 6.699	Corr. Chron. + 2 3.98
	7954, B. A. C. . .	20.3	33.4	45.7	24 33.13	3	29.500	4 59.00	23.062	
	Metis	0.0	12.3	24.8	41 12.37	2	35.891			α δ h. m s. ° ′ ″
	7954, B. A. C. . .	57.0	9.5	21.8	46 9.43	3	29.342	4 57.06	23.364	Weisse XXII, 815. 22 38 14.53 — 14 18 50.43
	Metis	29.1	41.0	53.5	49 41.20	2	35.554			7954, B. A. C. 22 41 37.46 — 14 23 4.12
	7954, B. A. C. . .	24.3	37.5	49.2	54 37.00	3	29.380	4 55.80	23.739	Metis—Weisse XXII, 815. Δ α Δ δ
	Metis	23.1	35.0	48.0	0 0 35.37	2	35.128			h. m. s. m. s. ′ ″
	Weisse XXII, 815 .		9.3	21.5	2 9.10	2	42.941	1 33.73	7.813	Sid. T. 23 6 25.09 — 1 33.02 + 2 5.04
	7954, B. A. C. . .	19.2	32.0	44.2	5 31.80	3	29.241	4 56.43	24.026	Δρ .00 + .10 p + .02 + 2.97
	Metis	9.2	21.7	34.0	10 21.63	2	34.401			
	Weisse XXII, 815 .		54.0	6.5	11 53.85	2	43.018	1 32.22	8.617	Metis—7954, B. A. C. h. m. s. m. s. ′ ″
	Metis	21.0	33.4	46.7	20 33.70	2	34.440			Sid. T. 23 6 3.90 — 4 55.64 + 6 11.58
	Weisse XXII, 815 .		5.2	17.0	22 4.80	2	43.130	1 31.10	8.690	Δρ .00 + 0.29
	7954, B. A. C. . .	16.2	29.2	41.0	25 28.80	3	29.121	4 55.10	24.594	p + .02 + 2.96
	Metis	28.1	41.0	53.2	30 40.77	2	34.893			
	Weisse XXII, 815 .		13.0	25.2	32 12.83	2	43.749	1 32.06	8.856	
	7954, B. A. C. . .	22.1	34.5	47.3	35 34.63	3	30.112	4 53.86	25.132	
	Metis	29.3		54.5	45 41.90	2	34.509			
	Weisse XXII, 815 .	59.5		25.1	47 12.30	Lost.				
	7954, B. A. C. . .	21.3	34.1	47.0	50 34.13	3	29.900	4 52.23	25.304	Night, windy—A. 6.
12	Metis	48.1	0.3	13.0	23 29 0.47	1	42.560			m. s.
	7954, B. A. C. . .	24.2	36.2	49.2	32 36.53	3	45.701	3 36.06	63.205	Corr. Chron. + 2 6.26
	Metis	48.1	0.2	12.5	38 0.27	1	42.148			α δ
	7954, B. A. C. . .	25.1	38.1	50.4	41 37.90	3	45.670	3 37.63	62.586	h. m. s. ° ′ ″ 7954, B. A. C. 22 41 37.45 — 14 23 4.18
	Metis	16.2	28.0	41.0	47 28.40	1	41.749			
	7954, B. A. C. . .	52.0	4.7	17.1	51 4.60	3	45.748	3 36.20	64.063	Metis—7954, B. A. C. Δ α Δ δ
	Metis	10.2	22.8	35.1	55 22.70	1	41.740			h. m. s. m. s. ′ ″
	7954, B. A. C. . .	47.0	59.1	11.8	58 59.30	3	45.286	3 36.60	63.610	Sid. T. 23 52 24.53 — 3 36.59 + 16 20.03
	Metis	58.7	11.9	24.2	0 2 11.60	1	41.511			Δρ + .01 + 0.80 p + .06 + 2.93
	7954, B. A. C. . .	35.7	48.1	0.8	5 48.20	3	45.595	3 36.60	64.148	
	Metis	33.0	46.2		9 46.20	1	41.650			
	7954, B. A. C. . .	9.7	23.0	35.2	13 22.63	3	45.532	— 3 36.43	+ 63.946	A. 5.
18	7976, B. A. C. . .	28.0	41.0	53.2	23 32 40.73	1	65.109	+ 0 1.97	— 18.802	m. s. Corr. Chron. + 2 20.62
	Metis	30.0	43.0	55.1	32 42.70	2	53.760			
	7976, B. A C. . .	21.3	34.5	46.0	36 33.93	1	65.043	0 2.15	18.560	α δ
	Metis		36.3	48.5	36 36.08	2	53.452			h. m. s. ° ′ ″ 7976, B. A. C. 22 46 11.30 — 12 59 13.46
	7976, B. A. C. . .	26.0	39.5	51.3	39 38.93	2	35.198	0 2.40	18.224	Metis—7976, B. A. C. Δ α Δ δ
	Metis	29.0	41.3		39 41.33	2	53.422			h. m. s. m. s. ′ ″
	7976, B. A. C. . .	28.2	40.0	52.8	42 40.33	2	35.101	0 2.37	18.207	Sid. T. 23 52 5.29 + 0 3.07 — 4 38.80
	Metis	30.3		55.1	42 42.70	2	53.308			Δρ .00 — 0.21 p + .05 + 2.81
	7976, B. A. C. . .	8.3	20.0	33.3	45 20.53	1	65.070	0 2.90	18.299	
	Metis		23.1	36.0	45 23.43	2	53.218			
	7976, B. A. C. . .	28.3	41.0	54.0	58 41.10	1	65.115	0 3.10	17.821	
	Metis	32.0	44.1	56.5	58 44.20	2	52.785			
	7976, B. A. C. . .	21.0	33.7	46.8	0 1 33.83	1	64.960	+ 0 4.17	— 17.641	A. 5.
	Metis	26.0		50.0	1 38.00	2	52.450			

METIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1849.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Dec. 18	7976, B. A. C.	46.3	59.0	11.3	0 3 58.87	1 64.941	+ 0 4.20	—17.805	
	Metis	50.7	3.5	15.0	4 3.07	2 52.595			
	7976. B. A. C.	53.7	6.0		6 6.00	1 64.760	+ 0 4.50	17.882	
	Metis		10.5	23.2	6 10.50	2 52.491			
Dec. 24	Weisse XXII, 1149	52.0	4.2		1 2 4.2	2 49.797	+ 0 23.8	+35.713	m. s.
	Weisse XXII, 1156	1.0	14.1		2 14.1	2 39.042	0 13.9	24.958	Corr. Chron. + 2 30.94
	Metis		28.0	41.0	2 28.0	1 44.235			
	Weisse XXII, 1149	36.2			6 48.8	2 49.838	0 24.3	36.004	α h m. s. — δ ° ' "
	Weisse XXII, 1156	45.2	57.9		6 57.9	2 39.060	0 15.2	25.226	Weisse XXII, 1149 22 54 30.36 —12 7 6.43
	Metis		13.1	25.1	7 13.1	1 43.985			Weisse XXII, 1156 22 54 39.74 —12 4 19.92
	Weisse XXII, 1149	58.2	10.0		11 10.0	2 49.628	0 25.1	35.788	Metis—Weisse XXII, 1149 Δ α Δ δ
	Weisse XXII, 1156	7.1	19.4		11 19.4	2 38.940	0 15.7	25.100	h. m. s. m. s. ' "
	Metis		35.1	47.2	11 35.1	1 43.991			Sid. T. 1 15 41.74 + 0 24.55 + 9 12.78
	Weisse XXII, 1149	21.0			14 33.6	2 49.588	0 24.1	35.970	Δρ .02 0.50
	Weisse XXII, 1156	30.2	42.9		14 42.9	2 38.889	0 14.8	25.271	p + .11 + 2.62
	Metis		57.7	10.2	14 57.7	1 43.769			Metis—Weisse XXII, 1156.
	Weisse XXII, 1149	41.0			17 53.6	2 49.610	0 24.6	36.081	
	Weisse XXII, 1156	50.0	2.5		18 2.5	2 38.818	0 15.7	25.289	h. m. s. m. s. ' "
	Metis		18.2	31.0	18 18.2	1 43.680			Sid. T. 1 15 41.74 + 0 15.33 + 6 28.33
	Weisse XXII, 1149	55.2	7.3		24 7.3	2 49.402	0 25.4	36.214	Δρ .01 0.15
	Weisse XXII, 1156	4.0	16.4		24 16.0	2 38.888	+ 0 16.7	+25.700	p + .11 + 2.62
	Metis			45.2	24 32.7	1 43.339			Bright moon light.—A. S.
Dec. 27	Weisse XXII, 1232	22.3	35.1	48.0	0 24 35.13	1 41.577	+ 1 14.04	—38.288	m. s.
	Metis	37.0	48.5	2.0	25 49.17	2 49.714			Corr. Chron. + 2 36.08
	Weisse XXII, 1232	53.5	6.1	18.7	28 6.10	1 41.588	1 14.60	38.084	
	Metis		21.0	33.0	29 20.70	2 49.521			α h. m. s. — δ ° ' "
	Weisse XXII, 1232	9.1	21.0	34.3	31 21.47	1 41.515	1 16.23	38.017	Weisse XXII, 1232 22 58 2.06 —11 14 51.69
	Metis	25.0	38.1	50.0	32 37.70	2 49.381			Metis — XXII, 1232 Δ α Δ δ
	Weisse XXII, 1232	49.0	1.3	13.8	36 1.37	1 41.383	1 15.70	38.052	h. m. s. m. s. ' "
	Metis	4.7	17.0	29.5	37 17.07	2 49.284			Sid. T. 0 41 20.86 + 1 15.71 — 9 42.81
	Weisse XXII, 1232	19.6	32.0	44.6	39 32.07	1 41.329	1 16.26	37.980	Δρ — .01 — 0.45 ; p + .08 + 2.61
	Metis	35.8	48.0	1.2	40 48.33	2 49.158			
	Weisse XXII, 1232	9.5	22.1	34.6	42 22.40	1 41.378	1 16.10	37.861	
	Metis	25.5		51.5	43 38.50	2 49.088			
	Weisse XXII, 1232	53.2	5.8	18.1	46 5.70	1 41.360	1 16.37	37.687	
	Metis	10.0	22.2	34.0	47 22.07	2 48.896			
	Weisse XXII, 1232	32.0	44.1	57.0	51 44.37	1 41.258	+ 1 16.36	—37.360	A. S.
	Metis	48.0	1.2	13.0	53 0.73	2 48.467			
Dec. 31	Metis	22.0	34.6		0 58 34.67	1 45.998			
	Weisse XXIII, 85	40.8	54.0	6.5	58 53.77	2 39.240	— 0 19.10	+23.393	
	Metis	56.1	9.0		1 2 8.73	1 45.850			
	Weisse XXIII, 85	16.2	28.7	41.0	2 28.63	2 39.339	0 19.90	23.640	
	Metis	0.5	12.8		5 12.77	1 45.648			
	Weisse XXIII, 85	19.7	32.0	44.2	5 31.97	2 39.160	0 19.20	23.663	
	Metis	34.2	46.5		7 46.52	1 45.478			
	Weisse XXIII, 85	53.0	5.0	17.5	8 5.17	2 39.192	— 0 18.65	+23.865	(Continued.)

SATURN.—MEASUREMENT OF POLAR DIAMETER.

Date.	Mean of times.	S. L.	N. L.	Revs.	Results.		
1849.	h. m.	*Revs.*	*Revs.*	*Revs.*			s.
Sept. 14	22 52.00	41.551	40.334	1.217	Corr. Chron.		—0 47
		.552	.392	.160			
		.620	.306	.314		h. m.	″
		.580	.324	.256	Sid. T.	22 51.2	18.93
		.558	.322	.236	Diam. of wire,	—	.43
		.543	.302	.241	P. Diam. of Planet,		18.50
		.419	.360	.059			
		.560	.307	.253			
		.559	.324	.235			
		41.621	40.269	.352			
25	23 26.15	38.560	37.342	1.218			
		.130	36.890	.240			s.
		.120	.894	.226	Corr. Chron.		—0 23.5
		.145	.890	.255			
		.202	.952	.250		h. m.	″
		.209	.972	.237	Sid. T.	23 25.8	19.38
		.251	.929	.322	Diam. of wire,		.42
		.291	37.010	.281	P. Diam. of Planet,		18.96
		.240	36.979	.261			
		.342	37.057	.285			
		.359	.020	.339			
		.341	.111	.230			
		.392	.080	.312			
		.359	.179	.180			
		.200	36.801	.399			
		.145	.900	.245			
		.176	.950	.226			
		.338	37.098	.240			
		.372	.128	.244			
		.340	.100	.240			
Oct. 8	21 40.00	40.869	39.749	1.120			
		41.011	.768	.243			

Date.	Mean of wires.	S. L.	N. L.	Revs	Results.		
1849.	h. m.	*Revs.*	*Revs.*	*Revs*			
Oct. 8	21 40.00	41.067	39.833	1.234			
		41.001	.812	.189			
		41.157	40.023	.134			
	21 45.00	40.781	39.716	1.065			
		40.940	.828	.112			m. s.
		41.027	.789	.228	Corr. Chron.		—0 0.49
		.069	.842	.227			
		.133	.851	.282		h. m.	″
	21 51.00	41.140	39.790	1.350	Sid. T.	21 55.0	18.74
		.177	40.000	.177	Diam. of wire,		.43
		.203	.047	.156	P. Diam. of Planet,		18.31
		.261	.048	.213			
		.258	.090	.168			
	21 56.00	40.832	39.629	1.203			
		.891	.711	.180			
		.950	.630	.320			
		.927	.650	.277			
		.940	.691	.249			
	22 07.00	40.585	39.333	1.252			
		.600	.380	.220			
		.601	.449	.152			
		.659	.400	.259			
		.665	.374	.291			
	22 12.00	40.746	39.466	1.280			
		.703	.448	.255			
		.772	.538	.234			
		.841	.626	.215			
		.793	.581	.212			
		40.839	39.693	1.146			
		.958	.670	.288			
		.949	.720	.229			
		.983	.759	.224			
		41.032	.750	.282			

MEASUREMENT OF EQUATORIAL DIAMETER.

		P. L.	F. L.				
	h. m.	*Revs.*		*Revs.*			
Oct. 24	21 27.00	39.918	41.191	1.273			
		.978	.138	.160			
		.900	.140	.240			
		.901	.208	.307			s.
		.940	.149	.209	Corr. Chron.		+0 30.8
		.919	.269	.350			
		.878	.210	.332		h. m.	″
		.922	.280	.358	Sid. T.	21 27.5	20.04
		.900	.428	.328	Diam. of wire,	—	43
		.910	.221	.311	E. Diam. of Planet,		19.61
		.931	.158	.227			
		.901	.169	.268			
		.892	.179	.287			
		.910	.170	.260			
		.901	.141	.240			

		P. L.	F. L.		
	h. m.	*Revs.*		*Revs.*	
Oct. 24	21 27.00	39.889	41.121	1.232	
		.890	.144	.254	
		.888	.209	.321	
		.880	.238	.358	
		.881	.210	.329	
			.233	.352	
			.238	.357	
			.338	.457	
			.321	.440	
		39.881	.192	.311	
			.171	.290	
			.161	.280	
			.278	.397	
			.237	.356	
			.125	.244	

EXTERNAL DIAMETER OF THE RING.

		P. L.	F. L.		
	h. m.			*Revs.*	
Oct. 25	23 5.00	39.941	42.650	2.709	
			.679	.738	
			.741	.800	
			.719	.778	
			.810	.869	
			.800	.859	

		P. L.	F. L.				
	h. m.			*Revs.*			s.
Oct. 25	23 5.00	39.941	42.841	2.900	Corr. Chron.		+0 27.8
			.638	.697			
			.773	.832		h. m.	″
			.732	.791	Sid. T.	23 5.5	43.08
			.799	.858	Diam. of wire,	—	.43
					Diam. of Ring,		42.65

SATURN.—MEASUREMENT OF EQUATORIAL DIAMETER.

Date.	Mean of wires.	P. L.	F. L.	Revs.	Results.			Date.	Mean of wires.	P. L.	F. L.	Revs.
1849.	h. m.	*Revs.*						1849.	h. m.	*Revs.*		
Oct. 25	22 44.00	39.941	41.278	1.337				Oct. 25	22 50.00	39.941	41.201	1.260
			.301	.360			s.				.261	.320
			.069	.128	Corr. Chron.		+0 27.4				.197	.256
			.211	.270							.220	.279
			.195	.254		h. m.	"				.380	.439
			.191	.250	Sid. T.	22 47.5	19.98				.272	.331
			.303	.362	Diam. of wire,		.43				.250	.309
			.248	.307	E. Diam. of Planet,		19.55				.200	.259
			.337	.394							.329	.388
			.276	.335							.150	.209
			.200	.259								

CERES.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.	RESULTS.
1849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
Sept. 18	Ceres - - - - -	31.0	45.0	58.7	19 32 44.90	1	43.620			Corr. Chron. s. —0 39.59 α: h. m. s. 6209, B. A. C. 18 11 21.83; δ: ° ′ ″ — 29 53 0.42 Ceres—6209, B. A. C.: h. m. s. Sid. T. 20 3 55.86; Δ α s. —0 59.36; Δ δ ′ ″ + 15 39.67 Δ ρ + .09; 2.61 p — .09; + 2.72
	6209, B. A. C. - -	31.0	44.8	59.1	33 44.97	3	44.593	— 1 00.07	+61.037	
	Ceres - - - - -		13.0	28.0	19 47 13.38	1	42.515			
	6209, B. A. C. - -	59.1	12.8	28.1	48 13.33	3	43.652	0 59.95	61.201	
	Ceres - - - - -		48.0	2.5	20 53 48.08	1	37.776			
	6209, B. A. C. - -	32.3		0.0	54 46.15	3	38.868	— 0 58.07	+61.156	
Sept. 19	Ceres - - - - -	15.4	29.5		19 55 29.5	1	41.921			Corr. Chron. s. —0 37.51 α: h. m. s. 6209, B. A. C. 18 11 21.81; δ: ° ′ ″ —29 53 0.43 Ceres—6209, B. A. C.: h. m. s. Sid. T. 20 9 47.56; Δ α s. —0 13.97; Δ δ ′ ″ +15 49.91 Δ ρ + .10; 2.78 p — .09; + 2.80
	6209, B. A. C. - -		43.8	58.7	55 43.8	3	43.587	— 0 14.3	+61.730	
	Ceres - - - - -	48.1	1.5		20 12 1.5	1	41.298			
	6209, B. A. C. - -		15.2		12 15.2	3	43.009	0 13.7	61.775	
	Ceres - - - - -	30.0	44.2		23 44.2	1	40.709			
	6209, B. A. C. - -		58.1	12.0	23 58.1	3	42.538	— 0 13.9	+61.893	
Sept. 21	6209, B. A. C. - -	17.0	31.8	46.0	19 7 31.60	3	51.317	+ 1 18.45	+63.532	Corr. Chron. s. —0 32.90 α: h. m. s. 6209, B. A. C. 18 11 21.77; δ: ° ′ ″ —29 53 0.46 Ceres—6209, B. A. C.: h. m. s. Sid. T. 19 31 11.26; Δ α m. s. +1 18.89; Δ δ ′ ″ +16 14.79 Δ ρ + .05; 2.23 p — .06; + 2.90
	Ceres - - - - -	36.0			8 50.05	1	47.849			
	6209, B. A. C. - -	31.0		58.5	17 44.75	3	51.068	1 18.38	63.324	
	Ceres - - - - -	49.0	3.2	17.2	19 3.13	1	47.808			
	6209, B. A. C. - -	4.1	18.4		28 18.15	3	51.006	1 19.05	63.460	
	Ceres - - - - -	23.5	37.1	51.0	29 37.20	1	47.610			
	6209, B. A. C. - -	34.3	48.2		38 48.33	3	50.960	1 19.00	63.525	
	Ceres - - - - -	53.0	7.5	21.5	40 7.33	1	47.499			
	6209, B. A. C. - -	29.2	43.5		58 43.50	3	50.179	+ 1 19.57	+63.243	
	Ceres - - - - -	49.2		17.0	20 1 3.07	1	47.000			

ASTRÆA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.	RESULTS.
1849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	s.
Oct. 15	Astræa	56.5	9.2	21.0	22 59 8.90	3	35.360			Corr. Chron. + 0 16.29
	Weisse III, 781 . .	58.2	11.0	23.5	23 3 10.90	1	28.031	− 4 2.00	−67.393	α
	Astræa	41.0	54.0	6.0	13 53.67	3	36.158			h. m. s. ° ′ ″
	Weisse III, 781 . .	43.2	56.1	9.2	17 56.17	1	28.392	4 2.50	67.830	Weisse III, 781 3 40 36.82 + 11 14 33.43
	Astræa	13.9	26.7		30 26.70	3	36.009			Astræa—Weisse III, 781 Δ α Δ δ
	Weisse III, 781 . .		29.5	41.3	34 29.46	1	28.426	4 2.76	67.647	h m. s. m. s. ′ ″
	Weisse III, 786 . .			58.1	34 45.59	1	40.107			Sid. T. 23 23 39.30 − 4 2.43 − 17 22.57
	Astræa	50.3	2.7	15.5	50 2.77	3	37.433			Δρ + .03 − .69
	Weisse III, 781 . .	53.2	5.0	17.5	54 5.23	1	29.064	− 4 2.46	−68.433	p − .25 + 2.79
										s.
Nov. 2	(12)	40.7	53.5	6.2	1 23 53.47	3	42.460	+ 2 27.03	+27.502	Corr. Chron. + 0 46.05
	Astræa	8.0		33.0	26 20.50	2	44.871			Δ α δ
	(12)	52.5	4.1	17.2	36 4.60	3	42.506	2 25.90	27.511	h. m. s. ° ′ ″
	Astræa	18.0		43.0	38 30.50	2	44.908			(12) 3 21 18.90 + 9 26 4.41
	(12)	47.5	59.7	12.3	2 5 59.83	3	42.703	2 24.84	27.495	Astræa— (12) Δ α Δ δ
	Astræa	12.0	25.0	37.0	8 24.67	2	45.121			h. m. s. m. s. ′ ″
	(12)	35.2	47.8	0.1	17 47.70	3	42.626	+ 2 25.20	+26.947	Sid. time 1 54 8.19 + 2 25.74 + 7 00.62
	Astræa	0.7	13.0	25.0	20 12.90	2	45.592			Δρ .00 .16
										p − .11 + 2.84
Nov. 4	(12)	20.2	32.5	45.0	0 19 32.57	1	54.981	+ 0 42.15	− 7.499	s.
	Astræa	2.0	15.0		20 14.72	1	62.480			Corr. Chron. + 0 51.31
	(12)	11.0	24.2	36.3	35 23.83	2	24.751	0 41.72	7.910	α δ
	Astræa	53.0		18.5	36 5.75	2	32.661			h. m. s. ° ′ ″
	(12)	26.2	38.1	51.0	42 38.43	2	24.659	0 41.07	8.202	(12) 3 21 18.91 + 9 26 4.39
	Astræa	7.0	19.5	32.0	43 19.50	2	32.861			Astræa— (12) Δ α Δ δ
	(12)	10.2	22.7	35.0	55 22.63	2	24.838	0 40.65	7.890	h. m. s. m. s. ′ ″
	Astræa		3.0	16.0	56 3.28	2	32.728			Sid. T. 0 59 42.19 + 0 40.68 − 2 6.03
	(12)	30.9	43.3	56.2	1 3 43.47	2	24.939	0 40.26	8.527	Δρ .00 − .05
	Astræa	11.0	24.2	36.0	4 23.73	2	33.466			p − .18 + 2.95
	(12)	26.2	39.1	51.0	10 38.77	2	25.098	0 40.35	8.312	
	Astræa		19.3	31.5	11 19.12	2	33.410			
	(12)	31.5	44.1	56.3	22 43.97	2	25.432	0 39.76	8.570	
	Astræa	11.0	24.0	36.2	23 23.73	2	34.002			
	(12)	5.3	18.1	30.3	35 17.90	2	25.470	+ 0 39.30	− 8.681	
	Astræa		57.0	10.3	35 57.20	2	34.151			
Nov. 5	Astræa	56.1	8.0	21.2	1 18 8.43	3	29.741			s.
	(12)	11.0	24.0	36.2	18 23.73	2	33.581	− 0 15.30	−26.073	Corr. Chron. + 0 52.84
	Astræa	53.5	6.2	18.5	30 6.07	3	29.838			α δ
	(12)			33.5	30 20.95	2	33.641	0 14.88	26.110	h. m. s. ° ′ ″
	Astræa	30.5	43.2	55.8	41 43.17	3	30.548			(12) 3 21 18.94 + 9 26 4.35
	(12)		58.0	11.2	41 58.27	2	34.046	0 15.10	26.415	Astræa— (12) Δ α Δ δ
	Astræa	44.1	56.0	8.0	46 56.03	3	30.525			h. m. s. m. s. ′ ″
	(12)		12.0	25.2	1 47 12.63	2	34.053	− 0 16.63	−26.385	Sid. T. 1 35 6.26 − 0 15.48 − 6 43.43
										Δρ .00 − 0.16
										p − .13 + 2.90

ASTRÆA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
1849. Nov. 10	Astræa	0.0	13.0	25.0	1 5 12.67	3	24.415		
	1068, B. A. C.	40.1	53.0	5.0	7 52.70	1	26.833	— 2 40.03	—57.646
Nov. 12	(13)	17.2	30.1	42.0	3 14 29.77	2	40.400	+ 0 54.60	— 1.160
	Astræa	12.1	24.0	37.0	15 24.37	2	41.560		
	(13)	14.0	26.1	38.5	21 26.20	2	40.659	0 54.30	1.232
	Astræa	8.0	20.5	33.0	22 20.50	2	41.891		
	(13)	18.5	30.1	43.5	27 30.70	2	40.652	+ 0 54.10	— 1.071
	Astræa	12.0		37.6	28 24.80	2	41.723		
Nov. 13	(13)	46.0		11.0	0 9 58.50	1	33.969	+ 0 3.83	—14.782
	Astræa	50.0	2.0	15.0	10 2.33	1	48.751		
	(13)	27.0	40.4	53.0	91 40.13	1	33.921	+ 0 3.20	—15.268
	Astræa	30.0	44.0	56.0	21 43.33	1	49.189		
	1057, B. A. C.			7.5	24 55.21	3	49.280	— 3 11.88	+60.155
	(13)	50.0	4.0		35 4.00	1	34.015	+ 0 2.20	—15.461
	Astræa	54.2		18.2	36 6.20	1	49.476		
	1057, B. A. C.	7.2	19.4	31.7	39 19.43	3	49.435	— 3 13.23	+60.023
	Astræa	17.0	28.0	40,2	50 28.43	1	49.789		
	1057, B. A. C.	29.0	41.0	53.0	53 41.00	3	49.510	— 3 12.57	+59.785
	(13)		39.0	52.0	1 3 39.30	1	27.889	+ 0 2.10	—15.600
	Astræa	29.2	41.0	54.2	3 41.40	1	43.489		
	1057, B. A. C.	43.5	56.2	9.0	6 56.23	3	43.072	— 3 14.83	+59.647
	(13)		49.0	2.0	2 50 49.30	1	26.721	0 2.40	—16.211
	Astræa	34.5	47.0	59.2	50 46.90	1	42.932		
	1057, B. A. C.	52.0	5.4	18.1	54 5.17	3	41.656	— 3 18.27	+58.788
Nov. 24	975, B. A. C.	50.3	2.7	40.8	1 55 2.60	3	42.981	+ 2 32.13	+57.614
	Weisse III, 35	15.2	27.8	40.0	57 27.67	1	41.670	+ 0 7.06	— 3.761
	Astræa	22.0	35.0	47.2	57 34.73	1	45.431		
	975, B. A. C.	17.2	30.1	42.0	2 9 29.77	3	42.780	2.31.73	+57.025
	Weisse III, 35	43.5	56.1	8.2	11 53.93	1	41.550	0 5.57	— 4.269
	Astræa	49.0		14.0	12 1.50	1	45.819		
	975, B. A. C.	29.2	42.0	54.3	15 41.83	3	42.940	+ 2 30.02	+57.703
	Weisse III, 35	51.2	6.5	19.2	18 6.63	1	41.405	+ 0 5.22	— 3.896
	Astræa	59.0		24.7	18 11.85	1	45.301		
	Weisse III, 62	24.0	36.0		19 36.28	2	40.841	— 1 24.43	+25.691
	975, B. A. C.	29.2	42.1	54.0	25 41.77	3	43.097	+ 2 30.30	+57.222
	Weisse III, 35		6.0		28 6.00	1	41.581	+ 0 6.07	— 4.358
	Astræa		11.5	25.2	28 12.07	1	45.939		
	Weisse III, 62	24.1	36.2	49.2	29 36.50	2	40.946	— 1 24.43	+25.158
	975, B. A. C.	46.2	59.0	11.0	36 58.73	3	42.955	+ 2 30.77	+56.725
	Weisse III, 35	12.0	24.2	37.0	39 24.40	1	41.619	+ 0 5.10	— 4.675
	Astræa			12.0	39 29.50	1	46.294		
	Weisse III, 62		54.1	6.7	40 54.20	2	40.958	— 1 24.70	+24.81[illegible]
Nov. 26	975, B. A. C.	27.9	40.2	52.7	2 25 40.27	3	41.918	+ 0 46.38	+37.695
	Astræa	14.1		39.2	26 26.65	2	34.136		
	Weisse III, 35	53.0	6.0	18.0	28 5.67	1	40.391		
	Weisse III, 62		36.0	48.0	2 29 35.67	2	39.788		

RESULTS.

Nov. 12. Corr. Chron. + 1 m. 5.78 s.

	α (h. m. s.)	δ (° ′ ″)
(13)	3 13 29.44	+ 8 49 1.48

Astræa — (13)	h. m. s.	Δ α (m. s.)	Δ δ (′ ″)
Sid. T.	3 23 9.00	+ 0 54.33	— 0 17.75
Δ ρ		.00	.00
p		+ .01	+ 2.90

Nov. 13. Corr. Chron. + 1 m. 7.69 s.

	α (h. m. s.)	δ (° ′ ″)
(13)	3 13 29.45	+ 8 49 1.44
1057, B. A. C.	3 16 45.18	+ 8 29 44.64

Astræa — (13)	h. m. s.	Δ α (s.)	Δ δ (′ ″)
Sid T.	1 1 35.72	+ 0 1.79	— 3 57.70
Δ ρ		.00	— .10
p		— .17	+ 3.02

Astræa — 1057, B. A. C.	h. m. s.	m. s.	′ ″
Sid. T.	1 9 40.94	— 3 14.16	+15 17.37
Δ ρ		.00	.37
p		— .14	+ 3.01

Nov. 24. Corr. Chron. + 1 m. 28.33 s.

	α (h. m. s.)	δ (° ′ ″)
975, B. A. C.	3 0 37.48	+ 7 53 16.06
Weisse III, 35	3 3 3.00	8 9 0.87
Weisse III, 62	3 4 33.34	+ 8 1 28.26

Astræa—975, B. A. C.	h. m. s.	Δ α (m. s.)	Δ δ (′ ″)
Sid. T.	2 20 34.26	+ 2 30.99	+ 14 40.13
Δ ρ		.00	.34
p		— .05	+ 2.97

Astræa—Weisse III, 35.	h. m. s.	s.	′ ″
Sid. T.	2 20 34.26	+ 0 5.80	— 1 4.43
Δ ρ		.00	— .02
p		— .05	+ 2.97

Astræa—Weisse III, 62.	h. m. s.	m. s.	′ ″
Sid. T.	2 30 6.14	— 1 24.52	+ 6 27.69
		.00	.15
		— .04	+ 2.97

ASTRÆA.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.	RESULTS.
9.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
26	975, B. A. C. - -	59. 2	11. 3	23. 2	2 37 11. 23	3	41. 791	+ 0 45. 80	+37. 633	m. s.
	Astræa - - - -	45. 0	57. 1	9. 0	37 57. 03	2	34. 071			Corr. Chron. + 1 30. 08
	Weisse III, 35 - -	25. 0	37. 1	49. 3	39 37. 13	1	40. 489			α δ
	Weisse III, 62 - -	55. 2	7. 1	19. 3	41 7. 20	2	39. 681			h. m. s. ° ′ ″
	975, B. A. C. - -	52. 8	5. 0	17. 2	50 5. 00	3	41. 702	0 44. 50	37. 695	975, B. A. C. 3 0 37. 48 + 7 53 15. 96
	Astræa - - - -		49. 2	2. 0	50 49. 50	2	33. 920			
	975, B. A. C. - -	23. 6	36. 2	18. 5	52 36. 10	3	41. 730	0 44. 85	37. 833	Astræa — 975, B A. C. Δα Δδ
	Astræa - - - -		21. 2	33. 2	53 20. 95	2	33. 810			h m. s. s. ′ ″ Sid. T. 2 52 57. 84 + 0 45. 02 + 9 38. 60
	975, B. A. C. - -	22. 1	34. 2	46. 2	55 34. 17	3	41. 738	0 44. 83	37. 754	Δρ . 00 . 21
	Astræa - - - -	7. 0	19. 0	31. 0	56 19. 00	2	33. 897			p — . 01 + 2. 96
	975, B. A. C. - -	7. 5	20. 1	32. 5	58 20. 03	3	41. 709	0 45. 57	37. 526	
	Astræa - - - -	53. 2		18. 0	59 5. 60	2	34. 096			
	975, B. A. C. - -	31. 5	43. 2	56. 2	3 1 43. 63	3	41. 559	0 44. 30	37. 517	
	Astræa - - - -		27. 8	40. 2	2 27. 93	2	33. 955			
	975, B. A. C. - -	19. 5	31. 7	44. 2	4 31. 80	3	41. 442	+ 0 43. 90	+37. 483	
	Astræa - - - -	3. 2		28. 2	5 15. 70	2	33. 872			
27	Astræa - - - -	12. 0	25. 0	37. 1	0 56 24. 70	1	42. 318			m. s.
	975, B. A. C. - -	14. 0	26. 2	38. 5	56 26. 23	2	41. 665	— 0 1. 53	+29. 498	Corr. Chron. + 1 33. 38
	Astræa - - - -	8. 0	20. 2	33. 0	59 20. 40	1	42. 588			α δ
	975, B. A. C. - -	9. 1	21. 3	34. 3	59 21. 57	2	41. 709	0 1. 17	29. 272	h m. s. ° ′ ″
	Astræa - - - -	58. 0	10. 0	23. 0	1 5 10. 37	1	42. 876			975, B. A. C 3 0 37. 48 + 7 53 15. 91
	975, B. A. C. - -	0. 0	12. 5	25. 2	5 12. 57	2	42. 142	0 2. 20	29. 417	Astræa — 975, B. A. C. Δδ Δα
	Astræa - - - -	8. 0	21. 0	33. 2	9 20. 73	1	42. 970			h. m. s. s. ′ ″
	975, B. A. C. - -	9. 7	23. 2	35. 4	9 22. 77	2	42. 263	0 2. 04	29. 444	Sid. T. 1 14 10. 86 — 0 2. 14 + 7 30. 77
	Astræa - - - -	13. 1	25. 4	38. 1	11 25. 53	1	43. 023			Δρ . 00 . 18
	975, B. A. C. - -	15. 5	27. 5	39. 7	11 27. 57	2	42. 170	0 2. 04	29. 298	p — . 14 + 3. 02
	Astræa - - - -	37. 1		2. 0	13 49. 55	1	42. 856			
	975, B. A. C. - -	39. 3	51. 5	4. 3	13 51. 70	2	42. 183	0 2. 15	29. 478	
	Astræa - - - -	39. 1	51. 0	4. 1	17 51. 40	1	43. 058			
	975, B. A. C. - -	41. 2	54. 2	6. 3	17 53. 90	2	41. 993	0 2. 50	29. 086	
	Astræa - - - -	34. 0	46. 0		19 46. 33	1	43. 024			
	975, B. A. C. - -	36. 1	48. 5	1. 3	19 48. 63	2	42. 043	0 2. 30	29. 170	
	Astræa - - - -	37. 0	50. 0	2. 6	25 49. 87	1	43. 101			
	975, B. A. C. - -	40. 1	53. 2	5. 8	25 53. 03	2	42. 059	0 3. 16	29. 109	
	Astræa - - - -	3. 7		28. 2	27 15. 95	1	42. 729			
	975, B. A. C. - -	6. 1	18. 3	30. 3	27 18. 23	2	42. 053	— 0 2. 28	+29. 475	
6	Astræa - - - -	17. 4	29. 7	42. 0	1 25 29. 70	2	32. 217			
	Weisse III, 967 - -	19. 4	32. 0	44. 0	26 31. 80	1	42. 721	— 1 2. 10	—19. 647	
	Weisse III, 975 - -		21. 0	33. 5	31 21. 05	1	40. 476			
	Astræa - - - -	30. 2	42. 3	54. 3	36 42. 27	2	32. 352			
	Weisse III, 967 - -	32. 0	44. 3	57. 0	37 44. 43	1	42. 772	1 2. 16	19. 731	
	Astræa - - - -	16. 2	28. 1	40. 5	40 28. 27	2	32. 300			
	Weisse III, 967 - -	18. 0	30. 5	43. 1	41 30. 53	1	42. 713	1 2. 26	19. 738	
	Astræa - - - -	44. 8	57. 0	9. 5	47 57. 10	2	32. 322			
	Weisse III, 967 - -	47. 5	0. 0	12. 0	1 48 59. 83	1	42. 790	1 2. 73	19. 683	
	Astræa - - - -	16. 0	29. 3	41. 0	2 37 28. 77	2	29. 810			
	Weisse III, 967 - -	30. 5	33. 0	45. 0	38 32. 83	1	40. 208	— 1 4. 06	—19. 753	(Continued)

ASTRÆA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.	RESULTS.
1849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
Dec. 6	Astræa - - - -	19.2	31.0	43.3	2 43 31.27	2	29.947			Corr. Chron. m. s. +1 52.64
	Weisse III, 967 - -	23.0	35.0	48.1	44 35.37	1	40.081	−1 4.10	−20.017	
	Astræa - - - -	55.0	7.5	20.0	47 7.50	2	29.751			α h. m. s.; δ ° ′ ″
	Weisse III, 967 - -	59.4	12.0	24.2	48 11.80	1	40.050	1 4.30	19.852	Weisse III, 967 2 54 47.83 +7 52 40.43
	Astræa - - - -	15.2	28.1	39.7	53 27.67	2	29.744			Astræa—Weisse III, 967 Δ α Δ δ
	Weisse III, 967 - -	20.0	32.3	45.1	54 32.47	1	40.041	1 4.80	19.854	h. m. s. m. s. ′ ″
	Astræa - - - -	12.5	25.7	38.0	58 25.40	2	29.949			Sid. T. 2 27 53.76 −1 3.76 −5 4.73; Δ ρ .00 − .12
	Weisse III, 967 - -	17.5	29.7	42.0	59 29.73	1	40.220	1 4.33	19.880	p − .03 + 2.88
	Astræa - - - -	31.0	43.2	56.0	3 3 43.40	2	29.991			
	Weisse III, 967 - -	35.8	47.9	1.0	4 48.23	1	40.153	1 4.83	19.989	
	Astræa - - - -		51.0	3.5	11 50.95	2	29.945			
	Weisse III, 967 - -	44.1	57.0	9.0	12 56.70	1	40.164	−1 5.75	−19.932	
										m. s.
12	905, B. A. C. - - -	59.3	12.2	24.6	1 10 12.03	2	33.908	+2 1.44	+0.256	Corr. Chron. +2 6.80
	Astræa - - - -	1.0	13.4	26.0	12 13.47	2	33.652			
	Weisse III, 967 - -	34.2	46.0	58.7	16 46.30	1	39.470	−4 32.83	−24.333	α h. m. s.; δ ° ′ ″
	905, B. A. C. - - -	17.9	30.2	42.7	21 30.27	2	27.248	+2 0.96	+0.897	905, B. A. C. 2 48 13.02 +7 46 24.03
	Astræa - - - -	19.2	31.5	43.0	23 31.23	2	26.351			Weisse III, 967 2 54 47.80 +7 52 40.10
	Weisse III, 967 - -	52.0	4.0	17.0	28 4.33	1	32.810	−4 33.10	−23.692	Astræa—905, B. A. C. Δ α Δ δ
	905, B. A. C. - - -	9.2	21.3	33.1	34 21.20	2	27.383	+2 0.30	+0.896	h. m. s. m. s. ′ ″
	Astræa - - - -	9.0		34.0	36 21.50	2	26.487			Sid. T. 1 26 8.87 +2 0.90 +0 10.50
	Weisse III, 967 - -	43.8	56.1	9.2	40 56.37	1	33.003	−4 34.87	−23.635	Δ ρ .00 .00; p − .10 + 2.89
										Astræa—Weisse III, 967. h. m. s. m. s. ′ ″
										Sid. T. 1 26 8.87 −4 33.60 −6 7.18; Δ ρ .00 − .14; p − .11 + 2.89
17	Astræa - - - -	36.0		0.3	0 58 48.15	1	43.249			
	905, B. A. C. - - -	43.2	56.0	8.5	58 55.90	2	29.723	−0 7.75	+16.625	
	Astræa - - - -	57.9	10.0		1 1 10.15	1	43.430			
	905, B. A. C. - - -	5.2	18.0	30.2	1 17.80	2	29.832	0 7.65	16.553	m. s.
	Astræa - - - -	27.0			3 39.44	1	43.523			Corr. Chron. +2 20.03
	905, B. A. C. - - -	35.1	48.0	59.5	3 47.53	2	29.811	0 8.09	16.439	
	Astræa - - - -	29.0	41.3	53.6	6 41.30	1	43.319			α h. m. s.; δ ° ′ ″
	905, B. A. C. - - -	36.5	49.0	1.3	6 48.93	2	29.779	0 7.63	16.611	905, B. A. C. 2 48 13.03 +7 46 23.76
	Astræa - - - -	21.7	34.0	46.8	9 34.17	1	43.377			Astræa—905, B. A. C. Δ α Δ δ
	905, B. A. C. - - -	29.3	41.3	54.0	9 41.53	2	29.950	0 7.36	16.724	h. m. s. m. s. ′ ″
	Astræa - - - -	47.9	0.0	13.1	12 0.33	1	43.321			Sid. T. 1 33 45.49 −0 8.26 +4 16.05; Δ ρ .00 .10
	905, B. A. C. - - -	56.1	8.2		12 8.53	2	29.859	0 8.20	16.689	p − .09 + 2.83
	Astræa - - - -	55.1		20.5	14 7.80	1	43.251			
	905, B. A. C. - - -	3.5		29.1	14 16.30	2	29.758	0 8.50	16.658	
	Astræa - - - -	39.2	52.0		43 51.92	1	44.229			
	905, B. A. C. - - -	48.1	0.0	13.0	44 0.37	2	30.651	0 8.45	16.573	
	Astræa - - - -	19.2		44.2	46 31.70	1	44.069			
	905, B. A. C. - - -	27.2	40.5		46 40.50	2	30.450	0 8.80	16.532	
	Astræa - - - -	10.2	22.5	35.0	2 43 22.57	1	43.771			
	905, B. A. C. - - -	19.3		44.1	43 31.70	2	30.442	0 9.13	16.822	
	Astræa - - - -	40.2	52.3	5.0	45 52.50	1	43.490			
	905, B. A. C. - - -	49.2		14.5	46 1.85	2	30.358	−0 9.35	+17.019	

ASTRÆA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.	RESULTS.
1849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	m. s.
Dec. 24	Astræa - - - -	32. 1	44. 0	56. 2	1 40 44. 10	3	30. 468			Corr. Chron. +2 30. 96
	929, B. A. C. - - -	56. 1	8. 3	20. 4	46 8. 37	1	33. 268	— 5 24. 27	—57. 264	
										α h. m. s. δ ° ′ ″
	Astræa - - - -	19. 1	31. 5	43. 5	59 31. 37	3	30. 608			
	929, B. A. C. - - -	42. 8	55. 3	7. 4	4 55. 17	1	33. 619	5 23. 80	57. 053	929, B. A. C. 2 51 41. 08 +8 18 16. 57
	Astræa - - - -		12. 0	25. 0	2 21 12. 10	3	30. 140			Astræa—929, B. A. C. Δ α Δ δ
	929, B. A. C. - - -	24. 0	37. 1	49. 3	26 36. 80	1	33. 221	— 5 24. 70	—56. 983	h. m. s. m. s. ′ ″
										Sid. T. 2 3 0. 15 — 5 24. 26 —14 37. 70
										Δ ρ . 00 — . 33
										p — . 05 + 2. 68
27	Astræa - - - -	34. 0	46. 1		5 35 46. 45	2	45. 291			
	929, B. A. C. - - -	17. 0	29. 2	42. 3	41 29. 50	1	51. 446	— 5 43. 05	—23. 996	Corr. Chron. m. s. +2 37. 28
	Astræa - - - -	18. 5	30. 3	43. 0	46 30. 60	2	45. 420			
	929, B. A. C. - - -	2. 2	14. 1	27. 3	52 14. 53	1	51. 691	5 43. 93	23. 880	α h. m. s. δ ° ′ ″
	Astræa - - - -	18. 4		43. 0	5 58 30. 70	2	45. 025			929, B. A. C. 2 51 41. 07 +8 18 16. 02
	929, B. A. C. - - -	2. 7	15. 8	28. 1	6 4 15. 53	1	51. 448	5 44. 83	23. 728	Astræa—929, B. A. C. Δ α Δ δ
	Astræa - - - -	30. 9		56. 0	7 43. 45	2	44. 969			h. m. s. m. s. ′ ″
	929, B. A. C. - - -	15. 1	27. 9	40. 3	13 27. 77	1	51. 595	— 5 44. 32	—23. 525	Sid. T. 5 54 45. 08 — 5 44. 03 — 6 5. 56
										Δ ρ . 00 — . 18
										p — . 20 + 2. 80
31	Astræa - - - -	4. 1	16. 5	28. 5	1 54 16. 37	2	29. 518			
	929, B. A. C. - - -		58. 5	11. 5	59 58. 37	3	24. 179	— 5 42. 60	+ 5. 339	Corr. Chron. m. s. +2 46. 26
	Astræa - - - -	1. 7	12. 0	25. 0	2 3 12. 90	2	29. 251			
	929, B. A. C. - - -	42. 7	55. 2	7. 2	8 55. 03	2	53. 886	5 42. 13	5. 365	α h. m. s. δ ° ′ ″
	Astræa - - - -	13. 5	25. 5	38. 0	18 25. 66	2	26. 925			929, B. A. C. 2 51 41. 06 +8 18 15. 27
	929, B. A. C. - - -	55. 4	7. 6	19. 8	24 7. 60	2	51. 816	— 5 41. 94	+ 5. 109	Astræa—929, B. A. C. Δ α Δ δ
										h. m. s. m. s. ′ ″
										Sid. T. 2 8 4. 57 — 5 42. 02 + 1 21. 02
										Δ . 00 . 03
										p — . 05 + 2. 57

γ CEPHEI—FOR VALUE OF REVOLUTION OF MICROMETER.

1849.	Tr. over wire.	h. m. s.	2 — 1	3 — 2	3 — 1	
Oct. 11	1	22 46 59.2				
	2	48 14.4	2 15.2	2 14.1	4 29.3	
	3	50 28.5				
	1	51 47.4				
	2	54 2.6	2 15.2	2 14.8	4 30.0	
	3	56 17.4				
	1	23 5 31.9				
	2	7 46.1	2 14.2	2 15.4	4 29.6	
	3	10 1.5				
	1	11 41.1				
	2	13 56.2	2 15.1			
	3	(Lost.)				
	1	18 57.5				
	2	21 13.1	2 15.6	2 14.2	4 29.8	
	3	23 27.3				
	1	25 34.5				
	2	27 50.1	2 15.6	2 15.1	4.30.7	
	3	30 5.2				
	1	32 34.3				
	2	34 49.8	2 15.5			
	3	(Lost.)				
	1	37 57.1				
	2	40 12.9	2 15.8	2 13.8	4 29.6	
	3	42 26.7				
	1	44 29.2				
	2	46 45.1	2 15.9	2 14.5	4 30.4	
	3	48 59.6				
	1	50 42.9				
	2	52 58.2	2 15.3	2 14.7	4 30.0	
	3	55 12.9				
	1	56 47.5				
	2	59 2.3	2 14.8	2 14.2	4 29.0	
	3	0 1 16.5				
	1	2 52.3				
	2	5 8.1	2 15.8	2 14.7	4 30.5	
	3	7 22.8				
	1	9 51.1				
	2	12 6.4	2 15.3	2 14.6	4 29.9	m. s. ″
	3	14 21.0				Mean of 3 — 1. 4 29.82 = 4047.3
						Value of Rev. = 15.3868
	1	15 41.7				
	2	17 56.9	2 15.2	2 14.3	4 29.5	
	3	20 11.2				
	1	21 16.0				
	2	23 31.7	2 15.7	2 14.0	4 29.7	
	3	25 45.7				
	1	27 9.3				
	2	29 24.9	2 15.6	2 14.2	4 29.8	
	3	31 39.1				
	1	32 33.2				
	2	34 48.9	2 15.7	2 14.2	4 29.9	
	3	37 3.1				
	1	38 12.7				
	2	40 27.5	2 14.8	2 14.6	4 29.4	
	3	42 42.1				

MARS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
1849. Nov. 2	B. Z , 348, 84	38. 1	51. 3	4. 8	4 1 51. 40	2 33. 730	+ 7 2. 93	— 0. 052
	(° 9, 10)	5. 7	19. 2			2 31. 671	4. 76	
	(° 9)	49. 0				2 32. 713		
	Mars, S. P.	41. 0	54. 0	8. 0	8 54. 33	2 33. 782		
	Mars, S. F.	43. 0	56. 0	9. 5	8 56. 16			
	B. Z., 348, 84	35. 0	48. 5	1. 5	18 48. 33	2 33. 769	7 3. 50	+ 1. 353
	(° 9, 10)	3. 2	16. 5			2 31. 760	5. 25	
	(° 9)	47. 3		13. 5		2 32. 567		
	Mars, N. P.		52. 0	5. 0	25 51. 83	2 32. 416		
	Mars, F.		53. 5	7. 0	25 53. 58			
	B. Z., 348, 79	4. 7	18. 3	31. 5	33 18. 17	2 25. 652		
	B. Z , 348, 84	3. 2		31. 0	36 17. 10	2 33. 919	7 3. 90	0. 281
	(° 9, 10)		45. 0	58. 0		2 31. 608	5. 80	
	(° 9)		28. 0			2 32. 527		
	Mars, S. P.	7. 0	21. 0	35. 0	43 21. 00	2 33. 638		
	Mars, F.	9. 2	23. 0	36. 5	43 22. 90			
	B. Z., 348, 84	54. 2	8. 1	21. 0	5 3 7. 79	2 33. 761	7 3. 88	+ 1. 692
	(° 9, 10)	21. 8	35. 4	49. 1		2 31. 551	5. 94	
	(° 9)	6. 0	19. 2			2 32. 541		
	Mars, N. P.	58. 0	12. 0	25. 0	10 11. 67	2 32. 069		
	Mars, F.	1. 1	13. 1	27. 0	10 13. 73			
	B. Z., 348, 84	30. 2	43. 1	57. 0	29 43. 43	2 33. 858	7 4. 00	— 0. 131
	(° 9, 10)	58. 3	11. 0	24. 8		2 31. 599	5. 77	
	(° 9)	40. 8	54. 7			2 32. 502		
	Mars, S. P.	34. 0	47. 3	1. 0	36 47. 43	2 33. 989		
	Mars, F.	36. 2	49. 1	2. 3	36 49. 20			
	B. Z , 348, 84	53. 7		20. 5	47 7. 10	2 29. 272	7 4. 83	+ 1. 997
	(° 9, 10)	22. 1		48. 0		2 27. 245	6. 20	
	(° 9)	5. 6	19. 2			2 28. 170		
	Mars, N. P.	58. 0	12. 1	25. 7	54 11. 93	2 27. 275		
	Mars, F.	0. 2	13. 5	26. 2	54 13. 30			
	B. Z., 348, 84	15. 6	29. 2	42. 3	6 2 29. 03	2 29. 279		
	(° 9, 10)	44. 1	56. 7	10. 1		2 27. 056	+ 7 4. 75	+ 0. 821
	(° 9)	27. 1	41. 0	54. 0		2 27. 849	6. 85	
	Mars, S. P.		34. 0	47. 0	9 33. 78	2 28. 458		
	Mars, F.		36. 2	49. 0	9 35. 88			
Nov. 4	(° 9)	49. 5	3. 0	16. 5		2 42. 558		
	(° 9)		49. 0	3. 0		2 46. 082		
	Mars, P.		34. 2	47. 0	3 44 33. 85			
	Mars, S. F.		35. 2	48. 2	44 35. 05	2 42. 100		
	B. Z., 348, 94		31. 0			1 43. 848		
	B. Z., 348, 95			17. 0	46 3. 85	1 50. 492	— 1 28. 80	—21. 759
							30. 00	
	(° 9)			3. 5		2 48. 086		
	(° 9)	42. 5	56. 2	9. 5		2 42. 581		
	(° 9)			56. 2		2 46. 179		
	Mars, P.			40. 0	3 56 26. 55			
	Mars, N. P.			42. 5	56 28. 05	2 40. 690		
	B. Z., 348, 94			37. 5		1 43. 431		
	B. Z., 348, 95			10. 5	57 57. 05	1 50. 544	— 1 29. 00	—20. 297
							30. 50	

RESULTS.

Corr. Chron. m. s. 0 43. 81
. 82

	α	δ
	h. m. s.	° ′ ″
B. Z., 348, 84	6 18 47. 82	+ 24 20 23. 15

Mars—B. Z., 348, 4.	h. m. s.	Δ α m. s.	Δ δ
Sid. T.	5 10 35. 0	+ 7 6. 31	
Δ ρ		. 00	
p —		. 22	
	5 20 44. 34		+ 0 15. 41
Δ ρ			. 00
p			+ 3. 16

The night misty; planet blurred and indistinct—A. 6.

Bar. 30. 092	Therm.—At.		50. 2
	Int.		50. 2
	Ex.		43. 6

(Continued.)

MARS.

ATE.	OBJECTS.	Observed times of transit.				Mic.		Planet—Star.		RESULTS.
		A.	B.	C.	Mean.			Δ a	Δ mic.	
849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
v. 4	(° 9)	42. 3	56. 1	9. 5		2	42. 528			
	(° 9)	29. 1	42. 5	56. 5		2	46. 066			
	Mars, S. P. . . .	12. 3	26. 0	40. 0	4 7 26. 19	2	42. 068			
	Mars, N. F. . . .		28. 2	41. 8	7 28. 10	2	40. 562			
	B. Z., 348, 94 . .	10. 1	24. 3	37. 7		1	43. 730			
	B. Z., 348, 95 . .		55. 5	9. 5	8 55. 60	1	50. 411	— 1 27. 50	— 21. 808	
								29. 50	— 20. 302	
	(° 9)	55. 2	9. 2	22. 2		2	42. 600			
	(° 9)	42. 1	56. 0	9. 2		2	46. 235			
	Mars, S. P. . . .	26. 0	39. 7	53. 2	18 39. 63	2	42. 092			
	Mars, N. F. . . .	27. 9	41. 5	54. 7	18 41. 37	2	40. 551			
	B. Z., 348, 94 . .	23. 2	37. 0	51. 2		1	45. 725			
	B. Z., 348, 95 . .		8. 5	22. 1	20 8. 55	1	50. 498	— 1 27. 18	— 21. 745	
								28. 92	— 20. 204	
	(° 9)	27. 2	41. 2	54. 5		2	46. 021			
	Mars, S. P. . .	11. 0	25. 2	38. 2	4 36 24. 80	2	41. 777			
	Mars, N. F. . . .	12. 3	27. 0	39. 7	36 26. 33	2	40. 253			
	B. Z., 348, 94 . .	8. 2	22. 0	35. 6		1	43. 612			
	B. Z., 348, 95 . .		54. 2	7. 6	37 54. 03	1	50. 219	— 1 27. 70	— 21. 709	
								29. 28	— 20. 185	
	(° 9)	2. 5	16. 0	30. 0		2	46. 038			
	Mars, S. P. . . .	46. 2	1. 0	13. 2	4 43 59. 70	2	41. 760			
	Mars, N. F. . . .	48. 1	3. 5	15. 1	44 1. 60	2	40. 350			
	B. Z., 348, 94 . .	43. 2	57. 6	10. 5		1	43. 701			s.
	B. Z., 348, 95 . .		29. 2	42. 7	45 29. 00	1	50. 252	— 1 27. 40	— 21. 659	Corr. Chron. + 0 49. 40
								29. 30	— 20. 249	. 46
	(° 9)	35. 2	48. 5	2. 5		2	45. 965			
	Mars, S. P. . . .	19. 2	34. 2	46. 2	4 53 32. 70	2	41. 490			
	Mars, N. F. . . .					2	40. 208			
	B. Z., 348, 94 . .	16. 2	29. 5	43. 2		1	43. 551			α δ
	B. Z., 348, 95 . .		1. 5	15. 0	55 1. 53	1	50. 290	— 1 28. 83	— 21. 351	h. m. s. ° ′ ″
									— 20. 069	B. Z., 348, 95 6 27 55. 72 + 24 30 55. 94
	(° 9)	12. 5	26. 0	39. 5		2	45. 931			
	Mars, S. P. . . .	57. 1	11. 3	23. 5	5 3 10. 30	2	41. 290			
	Mars, N. F. . . .					2	40. 105			
	B. Z., 348, 94 . .	54. 2	7. 2	20. 5		1	43. 460			
	B. Z., 348, 95 . .		39. 2	52. 3	4 39. 20	1	50. 266	— 1 28. 90	— 21. 175	Mars — B. Z., 348, 95 Δα Δδ
									— 19. 991	h. m. s. m. s. ′ ″
	(° 9)	45. 5	58. 5	12. 0		2	46. 122			Sid. T. 4 15 24. 50 — 1 28. 75 — 5 22. 68
	Mars, S. P. . . .	29. 5	44. 2	57. 2	5 15 43. 35	2	41. 550			Δρ . 00 — 0. 10
	Mars, N.					2	40. 263			p — . 37 + 3. 67
	B. Z., 348, 94 . .	27. 1	40. 3	54. 1		1	43. 680			
	B. Z., 348, 95 . .		12. 3	25. 7	17 12. 30	1	50. 441	— 1 28. 95	— 21. 260	
									— 19. 973	
	(° 9)	2. 5	16. 1	29. 3		2	46. 220			Mars P. and centre — B. Z., 348, 95.
	Mars, S. P. . . .	47. 2	1. 9	14. 0	5 25 0. 60	2	41. 300			
	Mars, N.					2	40. 209			
	B. Z., 348, 94 . .			1. 5		1	43. 886			h. m. s. m. s. ′ ″
	B. Z , 348, 95 . .		29. 5	43. 1	25 29. 63	1	50. 472	— 1 29. 03	— 20. 979	Sid. T. 5 24 24. 48 — 1 28. 66 — 5 14. 81
									— 19. 888	Δ ρ . 00 — . 09
										p — . 19 + 3. 20
	(° 9)	6. 2	19. 5	33. 7		2	46. 370			Semi-diam. + . 47
	Mars, S. P. . . .	51. 0	5. 3	17. 3	5 34 4. 15	2	41. 608			
	Mars, N.					2	40. 479			
	B. Z , 348, 94 . .	47. 2	1. 3	14. 3		1	44. 015			
	B. Z., 348, 95 . .		32. 5	46. 2	35 32. 48	1	50. 728	— 1 28. 33	— 21. 031	
									— 19. 902	In. °
	(° 9)	8. 5	21. 5	35. 1		2	46. 361			Bar. 30. 176 Ther. At. 60. 0
	Mars, S. P. . . .	53. 1	7. 2	19. 2	5 41 6. 15	2	41. 484			Ex. 59. 0
	Mars, N					2	40. 232			Int. 54. 3 A. 5.
	B. Z., 348, 94 . .	49. 2	3. 5	16. 0		1	43. 941			
	B. Z., 348, 95 . .		35. 2	48. 0	42 34. 75	1	50. 662	— 1 28. 60	— 20. 973	
									— 19. 721	

MARS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean Sid. T.	Mic.		Planet—Star. Δ α	Δ mic.
1849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
Nov. 12	12557, Lalande - -	36.2	50.3	3.1	5 24 49.87	2	45.395	+ 0 31.73	+ 13.310
	Mars, S. P. - - - -	8.0	23.1	35.2	25 21.60	2	32.055		15.082
	Mars, N. - - - -					2	30.313		
	12557, Lalande - -	59.4	13.2	26.1	32 12.90	2	45.270	0 31.45	13.408
		30.7	46.2	58.0	32 44.35	2	31.862		15.039
	Mars, S. P. - - - -					2	30.231		
	Mars, N. - - - -								
	12557, Lalande - -	6.1	20.0	33.3	38 19.80	2	46.407	0 31.89	13.656
	Mars, S. P. - - - -		51.0	5.0	38 49.05	2	32.751		15.092
	Mars, N. F. - - -		53.2	6.2	38 51.69	2	31.315		
	12557, Lalande - -	58.2	11.4	25.1	57 11.57	2	45.608	0 30.58	13.656
	Mars, S. P. - - -		44.1	56.2	57 42.15	2	31.952		15.508
	Mars, N. - - - -					2	30.100		
	12557, Lalande - -	3.3	16.2	29.1	6 1 16.20	2	45.692	0 30.95	13.760
	Mars, S. P. - - - -		19.1	0.8	1 47.15	2	31.932		15.524
	Mars, N. - - - -					2	30.178		
	12557, Lalande - -	10.0	53.3	7.0	7 53.43	2	45.652	0 31.42	13.765
	Mars, S. P. - - - -	11.0	27.0	38.7	8 24.85	2	31.887		15.461
	Mars, N. - - - -					2	30.191		
	12557, Lalande - -	39.1	52.7	6.0	15 52.60	2	45.731	0 31.30	13.961
	Mars, S. P. - - - -	11.0	25.6	36.8	16 23.90	2	31.770		15.679
	Mars, N. - - - -					2	30.652		
	12557, Lalande - -	10.1	23.5		42 23.41	2	46.389	0 31.41	14.348
	Mars, S. P. - - - -	41.2	56.5	08.0	42 54.85	2	32.041		15.769
	Mars, N. - - - -					2	30.620		
13	12557, Lalande - -	39.3	53.1	6.0	3 11 52.80	3	33.752	0 16.70	24.532
	Mars, S. P. - - -	56.0	11.2	23.0	15 9.50	2	39.133		25.956
	Mars, N. - - - -					2	37.709		
	12557, Lalande - -	18.1	31.0	45.0	19 31.37	3	33.565	0 16.73	24.449
	Mars, S. P. - - -	35.0	49.0	1.2	19 48.10	2	39.029		25.863
	Mars, N. - - - -					2	37.615		
	12557, Lalande - -	53.0	5.1		23 5.10	3	33.620	0 16.10	24.574
	Mars, S. P. - - -	8.3	23.0	34.1	23 21.20	2	38.959		25.918
	Mars, N. - - - -					2	37.615		
	12557, Lalande - -	24.8	38.0	51.7	29 37.90	3	36.782	0 16.00	24.604
	Mars, S. P. - - -	40.0	56.0	7.8	29 53.90	2	42.091		26.009
	Mars, N. - - - -					2	40.686		
	12557, Lalande - -	14.9	28.5	42.0	32 28.47	3	36.788	0 15.98	24.490
	Mars, S. P. - - -	31.2	46.0	57.7	32 44.45	2	42.211		25.991
	Mars, N. - - - -					2	40.710		
	12557, Lalande - -	33.0	46.5	0.5	36 46.67	3	36.802	+ 0 15.98	24.565
	Mars, S. P. - - -	49.1		16.2	37 2.65	2	42.150		+ 25.989
	Mars, N. - - - -					2	40.726		

RESULTS.

Corr. Chron. m. s. + 1 5.12
5.24

		α	δ
		h. m. s.	° ′ ″
12557, Lalande,	—	6 25 50.34	+24 44 37.76

Mars. P. and centre—12557, Lalande,

	h. m. s.		Δ α (s.)	Δ δ (′ ″)
Sid. T.	4 40 50.53		+0 32.39	+3 34.03
		Δ ρ	.00	.06
		p	— .32	+ 3.63
	Semi-diam.,		+ .50	
	h. m. s.		s.	′ ″
	6 8 45.56		+0 31.26	+3 45.67
		Δ ρ	.00	.06
		p	— .06	+ 3.17
	Semi-diam.,		+ .50	

	In.		°	
Bar.	30.094	Ther. At.	74.0	
		Int.	47.0	
		Ex.	44.0	A. 10.

Night very fine. Low mist and very heavy dew. The position of the observer after the last comparison was so confined and cramped as to render observations altogether unsatisfactory.

MARS.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic. w.	Mic. revs.	Planet—Star. Δ α	Δ mic.
849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
v. 13	12557, Lalande - -	4. 2	17. 7	31. 0	40 17. 63	3	36. 875	+ 0 16. 10	+ 24. 799
	Mars, S. P. - - -		35. 2	47. 1	40 33. 73	2	41. 989		26. 276
	Mars, N. - - - -					2	40. 512		
	12557, Lalande - -	58. 5	12. 0	25. 2	43 11. 90	3	36. 862	0 16. 45	24. 625
	Mars, S. P. - - -	15. 0	29. 7	41. 7	43 28. 35	2	42. 150		26. 079
	Mars, N. - - - -					2	40. 696		
	12557, Lalande - -	19. 7	33. 1	47. 0	45 33. 27	3	36. 902	0 15. 68	
	Mars, P. - - - -	35. 0	51. 0	2. 9	45 48. 95		(lost.)		
	Mars, N. - - - -					2	40. 387		
	12557, Lalande - -	35. 2	49. 1	2. 3	50 48. 87	3	36. 802	0 15. 63	24. 645
	Mars, S. P. - - -	51. 0	6. 5	18. 0	51 4. 50	2	42. 070		26. 370
	Mars, N. - - - -					2	40. 345		
	12557, Lalande - -	45. 1	58. 5	10. 3	59 57. 97	3	36. 928		
	Mars, S. P. - - -	3. 1		28. 2	4 0 15. 65	2	41. 905		
	Mars, N. - - - -					2	40. 486		
	12557, Lalande - -	24. 3	37. 5	51. 0	7 37. 60	3	36. 826	0 15. 90	24. 970
	Mars, S. P. - - -		55. 1	6. 9	7 53. 50	2	41. 769		26. 343
	Mars, N. - - - -					2	40. 396		
	12557, Lalande - -	14. 2	28. 0	41. 0	11 27. 73	3	36. 925	0 15. 87	25. 099
	Mars, S. P. - - -	30. 2	45. 3	57. 0	11 43. 60	2	41. 739		26. 562
	Mars, N. - - - -					2	40. 276		
	12557, Lalande - -	47. 3	1. 0	14. 3	18 0. 87	3	36. 975	0 15. 33	25. 127
	Mars, S. P. - - -	3. 2	18. 1	29. 2	18 16. 20	2	41. 761		26. 402
	Mars, N. - - - -					2	40. 486		
	12557, Lalande - -	55. 1	8. 5	21. 7	21 8. 43	3	37. 075	0 15. 07	
	Mars, P. - - - -	10. 0		37. 0	21 23. 50		(lost.)		
	Mars, N. - - - -					3	40. 401		
	12557, Lalande - -	39. 2	52. 1	6. 0	42 52. 37	3	37. 011	0 15. 38	25. 346
	Mars, S. P. - - -	54. 0	9. 3	21. 5	43 7. 75	2	41. 578		26. 649
	Mars, N. - - - -					2	40. 275		
	12557, Lalande - -	31. 3	45. 0	58. 1	47 44. 80	3	36. 950	0 14. 80	25. 425
	Mars, S. P. - - -	46. 2	1. 9	13. 0	47 59. 60	2	41. 438		26. 657
	Mars, N. - - - -					2	40. 206		
	12557, Lalande - -	28. 1	41. 0	55. 0	52 41. 37	3	36. 895	+ 0 15. 13	+ 25. 261
	Mars, S. P. - - -	43. 0	58. 2	10. 0	52 56. 50	2	41. 547		26. 575
	Mars, N. - - - -					2	40. 233		
20	B. Z , 523, 110 . .		18. 2		3 46 18. 2	2	38. 258	+ 1 10. 8	+ 0. 097
	Mars, N. P. . . .		29. 0		47 29. 0	2	38. 161	12. 1	
	Mars, F.		30. 3		47 30. 3				
	B. Z., 523, 110 . .		41. 8		3 50 41. 8	2	38. 297	1 10. 2	+ 0. 148
	Mars, N. P. . . .		52. 0		51 52. 0	2	38. 149	+ 11. 8	
	Mars, F.		53. 6		51 53. 6				

RESULTS.

Nov. 13:

		m. s.
Corr. Chron.		+ 1 6. 96

	h. m. s.	° ′ ″
12557, Lalande,	6 25 50. 37	+ 24 44 37. 38

Mars P. & centre—12557, Lalande,

	h. m. s.	Δ α s.	Δ δ ′ ″
Sid. T.	3 56 47. 19	+ 0 15. 87	+ 6 32. 56
$\Delta \rho$		. 00	. 12
p		— . 46	+ 4. 09
Semi-d.		+ . 50	

Bar. - - 30. 12 In. Ther. At. 60. 0° Ex. 55. 5

Very fine night.—A. 10.

Nov. 20:

Bar. 29. 78 In. Ther. At 57. 8° Ex. 58. 4

Wind too high, and soon overclouded. A. 7.

MARS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ Mic.
1849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
Nov. 24	B. Z., 523, 106 . .	25. 1	39. 1		3 48 39. 00	2	42. 070	+ 0 39. 10	+ 1. 894
	Mars, S. P.	4. 0		32. 2	49 18. 10	2	40. 179		
	(° 9)	27. 0	40. 8	55. 0	50 40. 93	2	53. 543		
	B. Z., 523, 106 . .	48. 1	57. 0		54 56. 90	2	42. 019	0 39. 00	2. 920
	Mars, P.		36. 0	49. 0	55 35. 90				
	Mars, N. F. . . .		37. 5	51. 0	55 37. 40	2	39. 099		
	(° 9)	45. 2	59. 2	12. 7	56 59. 03	2	53. 511		
	B. Z , 523, 106 . .	0. 7	14. 1		4 1 14. 00	2	42. 100	0 39. 60	1. 918
	Mars, S. P. . . .	40. 0	55. 1	7. 2	1 53. 60	2	40. 182		
	(° 9)	2. 0	16. 0	30. 0	3 16. 00	2	53. 775		
	B. Z., 523, 106 . .	47. 5	1. 0		8 0. 90	2	42. 205	0 39. 00	1. 983
	Mars, P.		40. 0	54. 0	8 39. 90				
	Mars, S. F. . . .		41. 5	55. 5	8 41. 40	2	40. 222		
		50. 3	3. 8	17. 0	10 3. 70	2	53. 759		
	B. Z., 523, 106 . .	15. 2	29. 0		12 28. 90	2	42. 222	(Omitted in mean.)	3. 352
	Mars, P.		7. 0	21. 0	13 6. 90				
	Mars, N. F. . . .		9. 2	23. 0	13 9. 10	2	38. 870		
	(° 9)	18. 2	31. 0	44. 7	14 31. 30	2	53. 772		
	B. Z., 523, 106 . .	33. 2	45. 8		19 45. 70	2	42. 251	(Omitted.)	1. 990
	Mars, P.		24. 0	38. 0	20 23. 90				
	Mars, S. F. . . .		26. 2	39. 2	20 26. 10	2	40. 261		
	(° 9)	34. 2	49. 1	2. 3	21 48. 53	2	53. 741		
	B. Z. 523, 106 . .	35. 1	48. 0		23 47. 90	2	42. 114	0 38. 75	3. 343
	Mars, N. P. . . .	13. 0	28. 0	40. 3	24 26. 65	2	38. 771		
	(° 9)	36. 8	51. 3	4. 0	25 50. 70	(Lost.)			
	B. Z., 523, 106 . .	56. 1	10. 2		48 10. 10	2	42. 225	0 36. 80	3. 745
	Mars, N. P. . . .	33. 0	49. 1	0. 8	48 46. 90	2	38. 480		
	(° 9)	59. 3	13. 1	26. 2	50 12. 87	(Lost.)			
	B. Z , 523, 106 . .	15. 1	29. 1		55 29. 00	2	42. 220	+ 0 36. 30	3. 676
	Mars, N. P. . . .	51. 4	6. 5	19. 2	57 5. 30	2	38. 544		
	(° 9)	18. 2	31. 1	44. 8	58 31. 37	2	53. 663		
	(° 9)			14. 0	59 0. 65	1	56. 537		
	B. Z., 523, 111 . .		06. 2		59 6. 10	1	57. 173	— 2 0. 80	
	B. Z., 523, 106 . .	45. 1	58. 4	12. 0	5 32 58. 50	2	43. 740	+ 0 34. 55	+ 2. 739
	Mars, S. P. . . .	19. 2	34. 3	46. 9	33 33. 05	2	41. 001		
	(° 9)	48. 3		15. 1	35 1. 70	2	55. 372		
	(° 9)		30. 4	44. 7	35 30. 30	1	58. 131		
	B. Z., 523, 111 . .	22. 3	36. 0	49. 1	35 35. 80	1	58. 910	— 2 2. 75	
Nov. 26	Mars, S. P. . . .	17. 2	32. 1	44. 0	3 34 30. 60	2	37. 001		
	Mars, N.					2	35. 379		
	Lalande, 12237 . .	34. 0	48. 0	01. 2	34 47. 73	2	33. 691	— 0 17. 13	— 3. 310
									1. 688
	Mars, S. P. . . .	31. 1	46. 1	58. 0	37 44. 55	2	37. 040		
	Mars, N.					2	35. 290		
	Lalande, 12237 . .	48. 0		15. 2	38 01. 60	2	33. 589	0 17. 05	3. 451
									1. 701
	Mars, S. P. . . .	40. 1	55. 0	07. 0	42 53. 55	2	36. 741		
	Mars, N.					2	35. 078		
	Lalande, 12237 . .	57. 1	10. 0	24. 2	43 10. 43	2	33. 490	0 16. 88	3. 251
									1. 588
	Mars, S. P. . . .	10. 0	25. 2	37. 2	46 23. 60	2	36. 449		
	Mars, N.					2	35. 038		
	Lalande, 12237 . .			54. 2	46 40. 69	2	33. 502	0 17. 09	2. 947
									1. 536

RESULTS.

Corr. Chron. + 1 m. 27. 40 s.

	α h. m. s.	δ ° ′ ″
B. Z. 523, 106	6 18 3. 08	+25 27 14. 05

Mars P.—B. Z. 523, 106 — Δ α, Δ δ

	h. m. s.	s.
Sid. T.	4 28 52. 32	+ 0 37. 89
Δ ρ		. 00
p —		. 37
Semi-d. +		. 54

Mars S.—B. Z. 523, 106

	h. m. s.	′ ″
Sid. T.	4 24 13. 11	+ 0 32. 34
Δ ρ		. 00
p		3. 75
Semi-d.		+ 7. 20

Mars N.—B. Z. 523, 106

	h. m. s.	′ ″
Sid. T.	4 29 15. 73	+ 0 52. 37
Δ ρ		. 00
p		+ 3. 74
Semi-d.		— 7. 20

Bar. 30. 054 In. Ther. At 70.° Ex. 54. A. S.

Clouds prevented further observations. The star B. Z , 523, 106, was used in these comparisons instead of B. Z, 523, 111, it being more distinctly seen. The other star (111) was intended to have been used in continuing the observations had the weather permitted.

MARS.

	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. a	mic.	RESULTS.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
26	Mars, S. P. . . .	4. 8	18. 2	31. 0	3 48 17. 90	2 36. 290			
	Mars, N.					2 35. 022			
	Lalande, 12237 . .		36. 0	49. 2	48 35. 69	2 33. 509	— 0 17. 79	— 2. 781	
								— 1. 513	
	Mars, S. P. . . .	20. 2	35. 2	47. 3	55 33. 75	2 36. 622			
	Mars, N.					2 34. 789			
	Lalande, 12237 . .	38. 5	52. 0	5. 1	55 51. 87	2 33. 666	0 18. 12	2. 956	
								1. 123	
	Mars, S. P. . . .	12. 1	28. 2	39. 5	4 2 25. 80	2 36. 455			
	Mars, N.					2 34. 913			
	Lalande, 12237 . .	30. 1		58. 1	2 44. 10	2 33. 599	0 18. 30	2. 856	
								1. 314	
	Mars, S. P. . . .	28. 0	43. 1	55. 0	5 41. 50	2 36. 339			
	Mars, N.					2 34. 858			
	Lalande, 12237 . .	46. 0	59. 3	13. 2	5 59. 50	2 33. 631	0 18. 00	2. 708	
								1. 227	
	Mars, S. P. . . .	43. 2	59. 1		10 56. 71	2 36. 335			
	Mars, N.					2 34. 787			
	Lalande, 12237 . .	2. 5		30. 1	11 16. 30	2 33. 438	0 19. 59	2. 897	
								1. 349	
	Mars, S. P. . . .	18. 2	34. 0	45. 5	14 31. 85	2 36. 518			
	Mars, N.					2 34. 740			
	Lalande, 12237 . .	37. 2		4. 8	14 51. 00	2 33. 487	0 19. 15	3. 031	
								1. 253	
	Mars, S. P. . . .	13. 4	29. 1	41. 0	18 27. 20	2 36. 270			
	Mars, N.					2 34. 638	(Omitted in mean.)		
	Lalande, 12237 . .		46. 0		18 46. 00	2 33. 536		2. 734	
								1. 102	
	Mars, S. P. . . .	10. 2	26. 2	37. 1	21 23. 65	2 36. 139			
	Mars, N.					2 34. 712			
	Lalande, 12237 . .	29. 1	43. 0	57. 2	21 43. 10	2 33. 476	0 19. 45	2. 663	
								1. 236	
	Mars, S. P. . . .	20. 0	36. 1	47. 9	24 33. 95	2 36. 086			
	Mars, N.					2 34. 651			
	Lalande, 12237 . .	40. 3	53. 6	7. 0	24 53. 63	2 33. 525	0 19. 68	2. 561	
								1. 126	
	Mars, S. P. . . .	31. 2	46. 3	58. 3	27 44. 75	2 36. 071			
	Mars, N.					2 34. 570			
	Lalande, 12237 . .		4. 0	18. 2	28 4. 00	2 33. 490	0 19. 25	2. 581	
								1. 080	
	Mars, S. P. . . .	14. 1	29. 2	41. 0	31 27. 55	2 36. 170			
	Mars, N.					2 34. 557			
	Lalande, 12237 . .	34. 3	47. 3	1. 0	31 47. 53	2 33. 493	0 19. 98	2. 677	
								1. 064	
	Mars, S. P. . . .	17. 2	31. 5	44. 2	35 30. 70	2 35. 985			
	Mars, N.					2 34. 637			
	Lalande, 12237 . .	37. 0	50. 5	3. 5	35 50. 33	2 33. 481	0 19. 63	2. 504	
								1. 156	
	Mars, S. P. . . .	30. 3	45. 4		40 43. 81	2 35. 970			
	Mars, N.					2 34. 707			
	Lalande, 12237 . .	50. 3	4. 1	17. 7	41 4. 05	2 33. 540	0 20. 24	2. 430	
								1. 167	
	Mars, S. P. . . .	11. 1			43 24. 61	2 35. 873			
	Mars, N.					2 34. 569			
	Lalande, 12237 . .	31. 3	45. 0	58. 2	43 44. 83	2 33. 483	0 20. 22	— 2. 390	
								— 1. 086	

MARS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ	Δ mic.	RESULTS.
		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
1849. Nov. 26	Mars, S. P. . . .	13.2	28.1		4 46 26.71	2	35.798			
	Mars, N.					2	34.430			
	Lalande, 12237 . .	33.2			46 46.60	2	33.468	— 0 19.89	— 2.330	
									— 0.962	
	Mars, S. P. . . .	30.3	45.5	58.0	5 3 44.15	2	35.667			
	Mars, N.					2	34.350			
	Lalande, 12237 . .	51.0	5.3	19.0	4 5.10	2	33.565	0 20.95	2.102	
									0.785	
	Mars, S. P. . . .	19.2	34.0	46.1	11 32.65	2	35.298			
	Mars, N.					2	33.975			
	Lalande, 12237 . .	40.2	53.8	7.7	11 53.90	2	33.218	0 21.25	2.080	
									0.757	
	Mars, S. P. . . .	9.9	25.2	37.2	14 23.55	2	35.233			
	Mars, N.					2	33.941			
	Lalande, 12237 . .	31.3	45.3	59.7	14 45.43	2	33.205	0 21.88	2.028	
									0.736	
	Mars, S. P. . . .	15.2	30.1	42.2	17 28.70	2	35.219			
	Mars, N.					2	33.782			
	Lalande, 12237 . .	37.0	50.7	4.2	17 50.63	2	33.243	0 21.93	1.976	
									0.539	
	Mars, S. P. . . .	25.2	40.9		20 38.71	2	35.071			
	Mars, N.					2	33.968			
	Lalande, 12237 . .	48.0	1.3	14.6	21 1.30	2	33.289	(Omitted.)	1.782	
									0.679	
	Mars, S. P. . . .	38.0	53.1		23 51.54	2	35.149			
	Mars, N.					2	33.932			
	Lalande, 12237 . .	59.2	13.7	27.0	24 13.30	2	33.357	0 21.76	1.795	
									0.575	
	Mars, S. P. . . .	35.2	50.1		40 48.74	2	34.302			
	Mars, N.					2	33.072			
	Lalande, 12237 . .	58.5	12.1	25.4	41 12.00	2	32.781	0 23.26	1.521	
									0.291	
	Mars, S. P. . . .	25.8	41.0		45 38.34	2	34.229			
	Mars, N.					2	33.011			
	Lalande, 12237 . .	49.0	3.1	16.4	46 2.83	2	32.559	0 24.49	1.670	
									0.452	
	Mars, S. P. . . .	30.8	46.1		49 44.34	2	34.160			
	Mars, N.					2	32.881			
	Lalande, 12237 . .	54.8	8.1	21.8	50 8.23	2	32.580	0 23.89	1.580	
									0.301	
	Mars, S. P. . . .		15.2	27.0	55 13.50	2	24.130			
	Mars, N.					2	32.790			
	Lalande, 12237 . .	24.0		51.1	55 37.55	2	32.580	0 24.05	1.550	
									0.210	
	Mars, S. P. . . .	32.1	47.2		58 45.65	2	32.119			
	Mars, N.					2	30.780			
	Lalande, 12237 . .	56.1	9.3	23.1	59 9.50	2	30.810	0 23.85	— 1.309	
									+ 0.030	
	Mars, S. P. . . .	10.1	25.3		6 1 23.64	2	32.232			
	Mars, N.					2	30.671			
	Lalande, 12237 . .	34.0	47.0		1 47.54	2	30.548	0 23.90	— 1.684	
									— 0.123	
	Mars, S. P. . . .	6.1	22.0		5 19.64	2	32.058			
	Mars, N.					2	30.591			
	Lalande, 12237 . .	31.0	45.0	58.3	5 44.77	2	30.462	0 25.13	— 1.596	
									— 0.129	

MARS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
1849.		s.	s	s.	h. m. s.	w.	revs.	m. s.	revs.
Dec. 6	Lalande, 11684 - -	32.5	46.0	59.7	4 4 46.07	2	27.331	+ 1 7.43	+ 16.391
	Lalande, 11714 - -	24.2	38.0	51.0	5 37.73	2	33.583	0 15.77	21.643
	Mars, N. P. - - -	40.0	55.7	7.0	5 53.50	1	42.091		
	Lalande, 11684 - -	24.2	38.1	52.0	10 38.10	2	27.530	1 6.40	14.066
	Lalande, 11714 - -	15.0	29.0	42.0	11 28.66	2	33.650	0 15.84	20.186
	Mars, S. P. - - -	31.0	46.1	58.0	11 44.50	1	43.615		
	Lalande, 11684 - -	54.1	8.1	22.0	29 8.07	2	27.572	1 5.88	14.344
	Lalande, 11714 - -	46.2	59.0	13.0	29 59.40	2	33.559	0 14.55	20.331
	Mars, S. P. - - -		15.2	27.9	30 13.95	1	43.379		
	Lalande, 11684 - -	17.1	31.0	44.0	33 30.70	2	27.490	1 5.85	15.716
	Lalande, 11714 - -	8.9	22.0	36.0	34 22.30	2	33.598	0 14.25	21.824
	Mars, N. P. - - -	23.1	38.3	50.0	34 36.55	2	41.925		
	Lalande, 11684 - -	19.2	33.0	46.5	40 32.90	2	27.358	1 5.38	14.127
	Lalande, 11714 - -	11.0	24.0	38.0	41 24.33	2	33.503	0 13.95	20.172
	Mars, S. P. - - -	24.3	40.0		41 38.28	1	43.382		
	Lalande, 11684 - -	14.0	26.9	41.3	45 27.40	2	27.410	1 5.10	15.789
	Lalande, 11714 - -	5.0		33.0	46 19.00	2	33.810	0 13.50	22.189
	Mars, N. P. - - -	18.9	34.3	46.1	46 32.50	1	41.772		
	Lalande, 11684 - -	36.0	49.3	3.0	59 49.43	2	27.385	1 3.97	14.337
	Lalande, 11714 - -	27.0		55.0	5 0 41.00	2	33.458	0 12.40	20.410
	Mars, S. P. - - -	39.8	55.2	7.0	0 53.40	1	43.199		
	Lalande, 11684 - -	22.0	36.1	49.1	9 35.73	2	25.242	1 2.92	15.841
	Lalande, 11714 - -	14.0			10 27.74	2	31.342	0 10.95	21.941
	Mars, N. P. - - -	25.3	40.2	52.0	10 38.65	1	39.552		
	Lalande, 11684 - -	53.0	7.0	20.5	17 6.83	2	25.291	1 2.72	14.792
	Lalande, 11714 - -	45.1		12.0	17 58.55	2	31.373	0 11.00	20.874
	Mars, S. P. - - -	56.1		23.0	18 9.55	1	40.650		
	Lalande, 11684 - -	8.0	21.7	35.3	22 21.66	2	25.218	1 2.54	15.870
	Lalande, 11714 - -			27.0	23 13.50	2	31.262	0 10.70	21.914
	Mars, N. P. - - -	10.3		38.1	23 24.20	1	39.499		
	Lalande, 11684 - -	20.4	34.2	48.1	27 34.23	2	25.200	1 2.42	14.671
	Lalande, 11714 - -	12.5		39.7	28 26.10	2	31.221	0 10.55	20.692
	Mars, S. P. - - -	23.1		50.2	28 36.65	1	40.680		
	Lalande, 11684 - -	17.2	30.7	44.0	33 30.63	2	25.160	1 1.87	16.131
	Lalande, 11714 - -	9.0		36.0	34 22.50	2	31.202	0 10.00	22.171
	Mars, N. P. - - -	19.0		46.0	34 32.50	1	39.182		
	Lalande, 11684 - -	37.5	53.0	7.0	39 52.50	2	24.990	1 1.91	14.651
	Lalande, 11714 - -	31.0		58.0	40 44.50	2	31.181	0 9.91	20.842
	Mars, S. P. - - -	40.8	56.0		40 54.41	1	40.490		
	Lalande, 11684 - -	19.0	32.5	46.2	44 32.57	2	25.003	1 0.90	16.063
	Lalande, 11714 - -	10.5			45 24.06	2	30.980	0 9.41	22.040
	Mars, N. P. - - -		33.0	47.0	45 33.47	1	39.091		
	Lalande, 11684 - -	33.1	47.1	0.0	6 41 46.73	2	27.119	0 58.04	14.310
	Lalande, 11714 - -			52.0	42 38.47	2	33.363	0 6.30	20.554
	Mars, S. P. - - -			58.5	42 44.77	1	42.960		
	Lalande, 11684 - -	4.7	18.1	32.0	48 18.27	2	27.239	0 56.40	14.450
	Lalande, 11714 - -	56.0	10.0		49 9.67	2	33.130	0 5.00	20.341
	Mars, S. P. - - -	1.0	16.0		49 14.67	1	42.940		
	Lalande, 11684 - -	30.4	44.0	57.8	57 44.07	2	27.280	0 55.43	15.491
	Lalande, 11714 - -	23.0	36.0	49.0	58 36.00	2	33.190	+ 0 3.50	+ 21.401
	Mars, N. P. - - -	26.0	41.0	53.0	58 39.50	1	41.940		

RESULTS.

Corr. Chron. m. s. + 1 53.21

	α h. m. s.	δ ° ′ ″
11684, Lalande,	6 1 34.43	+26 2 8.10
11714, Lalande,	6 2 26.53	+26 0 33.79

Mars, S. P.—11684, Lalande,

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	5 19 7.97	+1 2.97	+3 42.02
	Δ ρ	+ .00	.06
	p	— .15	3.31
	Semi-diam.,	+ .57	+ 7.60

Mars, N. P.—11684, Lalande,

Sid. T.	5 22 9.43	+1 2.57	+4 04.39
	Δ ρ	.00	.07
	p	— .15	+ 3.31
	Semi-diam.,	+ .57	— 7.60

Mars, S. P.—11714, Lalande,

	h. m. s.	Δ α s.	Δ δ ′ ″
Sid. T.	5 11 27.53	+0 11.81	+5 14.25
	Δ ρ	.00	.09
	p	— .18	3.32
	Semi-diam.,	+ .57	+ 7.60

Mars, N. P.—11714, Lalande,

	h. m. s.	s.	′ ″
	5 13 42.27	+0 11.44	+5 35.91
	Δ ρ	.00	.10
	p	— .18	+ 3.31
	Semi-diam.,	+ .57	— 7.60

Bar. 29.962 In. Ther. At. 80°. Ex. 39°.

A. 7.

The star 11714 was not well seen, and at some of the comparisons scarcely visible; 11684 is larger and was more distinct than the other. The planet throughout was blazing and unsteady; the wind high.

MARS.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.
849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
6	Lalande, 11684 . .	19.2	33.0	46.2	7 5 32.80	2	27.455	+ 0 54.80	+ 16.469
	Lalande, 11714 . .	11.2		38.0	6 24.60	2	33.370	0 3.00	22.384
	Mars, N. I. . . .	14.1	29.2	41.2	6 27.60	1	41.137		
	Lalande, 11684 . .	34.6	48.1	1.7	10 48.13	2	27.498	0 53.97	14.864
	Lalande, 11714 . .	26.2		53.2	11 39.70	2	33.610	+ 0 2.40	+ 20.976
	Mars, S. P. . . .	29.0	44.0	55.2	11 42.10	1	42.785		
11	Rumker, 1673 . .	28.2	41.5	56.0	3 26 41.90	2	34.070	+ 0 16.00	+ 4.436
	Mars, S. P. . . .	44.0	59.0	11.8	26 57.90	2	29.634		
	Rumker, 1673 . .	12.3	26.1	39.3	29 25.90	2	34.151	0 16.75	6.190
	Mars, N. P. . . .	29.3		56.0	29 42.65	2	27.961		
	Rumker, 1673 . .	15.0	28.3		32 28.30	2	34.059	0 15.95	4.698
	Mars, S. P. . . .	31.0	45.9	57.5	32 44.25	2	29.361		
	Rumker, 1673 . .	8.3	22.1		35 22.10	2	33.927	0 15.83	6.039
	Mars, N. P. . . .	24.3	39.0	50.5	35 37.93	2	27.888		
	Rumker, 1673 . .	20.8	34.2	48.0	39 34.33	2	33.848	0 15.77	4.546
	Mars, S. P. . . .	36.5	51.6	3.7	39 50.10	2	29.302		
	Rumker, 1673 . .	22.0	36.1	49.0	43 35.70	2	32.019	0 15.35	6.394
	Mars, N. P. . . .	37.5	53.2		43 51.05	2	25.625		
	Rumker, 1673 . .	14.0	29.2	42.0	48 28.40	2	32.149	0 14.85	4.835
	Mars, S. P. . . .	29.6		56.9	48 43.25	2	27.314		
	Rumker, 1673 . .	22.8	36.1	49.0	52 35.97	2	32.125	0 14.18	6.580
	Mars, N. P. . . .	36.5		3.8	52 50.15	2	25.545		
	Rumker, 1673 . .	21.1	34.0	48.0	55 34.37	2	32.086	0 13.53	5.039
	Mars, S. P. . . .	34.5	49.7	1.3	55 47.90	2	27.047		
	Rumker, 1673 . .	18.5	31.0		4 20 31.00	2	31.731	0 12.70	6.580
	Mars, N. P. . . .	30.3	45.2	57.1	20 43.70	2	25.151		
	Rumker, 1673 . .	1.0	14.4	28.1	24 14.50	2	31.739	+ 0 12.25	+ 5.259
	Mars, S. P. . . .	13.2	29.0		24 26.75	2	26.480		
12	Mars, S. P. . . .	59.1	14.9		3 51 12.78	2	38.900		
	Mars, N.					2	37.518		
	Rumker, 1680 . .	53.1	6.8	21.0	53 6.96	2	33.761	— 1 54.18	— 5.139
	Mars, N. P. . . .	19.0	34.2	46.8	55 32.90	2	37.525		
	Rumker, 1680 . .		26.8	41.0	57 26.98	2	33.745	1 54.08	3.780
	Mars, S. P. . . .	23.8	39.2	53.2	58 38.73	2	39.152		
	Rumker, 1680 . .		32.0	46.1	4 0 32.18	2	33 743	1 53.45	5.409
	Mars, N. P. . . .	15.8	31.1	42.9	2 29.35	2	37.472		
	Rumker, 1680 . .	10.2		39.0	4 24.60	2	33.642	1 55.25	3.830
	Mars, S. P. . . .	10.8	26.2	38.0	7 24.40	2	38.923		
	Rumker, 1680 . .	6.0	19.2	33.0	9 19.40	2	33.830	1 55.00	5.093
	Mars, N. P. . . .	38.2	54.0	5.8	11 52.00	2	37.308		
	Rumker, 1680 . .	34.1	47.9	1.2	13 47.73	2	33.670	1 55.73	3.638
	Mars, S. P. . . .	51.3	7.2	19.2	16 5 25	2	39.069		
	Rumker, 1680 . .		1.0	14.2	18 0.91	2	33.822	— 1 55.66	— 5.247

RESULTS.

Corr. Chron. + 2 m. 3.72 s.

	α h. m. s.	δ ° ′ ″
1673, Rumker	5 54 8.25	+26 16 22.75

Mars, S. P.—1673, Rumker

	h. m. s.	Δα s.	Δδ ′ ″
Sid. T.	3 49 48.74	+ 0 14.72	+ 1 13.81
Δα		.00	.00
p		— .44	+ 3.89
Semi d		+ .57	+ 7,70

Mars, N. P.—1673, Rumker.

	h. m. s.	s.	′ ″
Sid. T.	3 50 36.80	+ 0 14.56	+ 1 37.72
Δα		.00	.00
p		— .44	+ 3.89
Semi d		+ .57	— 7.70

Bar. 30.498 In. Ther. At. 78° Int. 39 Ex. 24 A. 5.

Planet diffused and unsteady. Star scarcely visible; it was thought useless to continue the observations.

MARS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1849.		s.	s.	s.	h. m. s.	w. revs	m. s.	revs.
Dec. 12	Mars, S. P.	9.3	25.1	37.0	4 33 23.15	2 39.058		
	Rumker, 1680	7.1	21.0	34.7	35 20.93	2 33.830	— 1 55.78	— 5.228
	Mars, N. P.	56.6	10.9	23.1	36 9.55	2 37.330		
	Rumker, 1680	53.5	7.3	21.0	39 7.27	2 33.575	1 57.72	3.755
	Mars, S. P.	51.2	5.9	18.0	41 4.60	2 38.430		
	Rumker, 1680	48.3	2.0	16.1	43 2.13	2 33.460	1 57.53	4.970
	Mars, N. P.	32.1	47.9	59.3	46 45.70	2 37.178		
	Rumker, 1680	31.1		58.5	48 44.80	2 33.491	1 59.10	3.687
	Mars, S. P.	32.1	48.0	0.0	0 46.05	2 38.412		
	Rumker, 1680	32.1	46.0	0.0	2 46.03	2 33.413	1 59.98	4.999
	Mars, N. P.	15.2	30.3	42.7	4 28.95	2 37.020		
	Rumker, 1680	14.4	28.0	42.0	6 28.13	2 33.632	1 59.18	3.398
	Mars, S. P.	24.0	39.2	51.1	8 37.55	2 38.392		
	Rumker, 1680	24.2	37.5	51.5	10 37.73	2 33.353	2 0.18	5.039
	Mars, N. P.	30.2	45.2	57.1	12 43.65	2 36.838		
	Rumker, 1680	30.5	44.0	57.3	14 43.93	2 33.453	— 2 0.28	— 3.385
Dec. 17	(° 9)	3.1	17.1	30.8	3 15 17.00	2 33.982		
	Mars, S. P.		8.5	20.1	16 6.29	2 38.653		
	Mars, N.					2 37.313		+ 1 496
	B. Z., 405, 56	18.5	32.1	46.1	18 32.23	2 40.149	— 2 25.94	2.836
	(° 9)	50.7	5.1	18.3	22 4.70	2 33.993		
	Mars, N. P.		55.2	7.1	22 53.29	2 37.402		
	Mars, S.					2 38.599		1.604
	B. Z., 405, 56	5.6	19.0	33.1	25 19.23	2 40.203	2 25.94	2.801
	(° 9)	33.2	47.1	1.3	27 47.20	2 34.092		
	Mars, N. P.	22.8	38.1	50.9	28 36.85	2 37.522		
	Mars, S.					2 38.688		1.501
	B. Z., 405, 56	48.0	2.1	16.0	31 2.03	2 40.189	2 25.18	2.667
	(° 9)	17.9	31.3		32 31.30	2 34.001		
	Mars, N. P.	6.0	21.3	34.0	33 20.00	2 37.386		
	Mars, S.					2 38.722		1.541
	B. Z., 405, 56	32.9	46.1	0.0	35 46.33	2 40.263	2 26.33	2.877
	(° 9)	51.7	5.1	19.2	39 5.33	2 33.929		
	Mars, S. P.		55.1	7.2	39 53.39	2 38.658		
	B. Z., 405, 56	7.1	20.7	34.1	42 20.63	2 40.247	2 26.24	1 589
	(° 9)	30.5	44.1	58.2	43 44.26	2 33.950		
	Mars, N. P.	18.1	32.0	45.8	44 31.95	2 37.400		
	Mars, S.					2 38.679		1.540
	B. Z., 405, 56		59.1	13.2	46 59.26	2 40.219	2 27.31	2.819
	(° 9)	23.2	37.2		48 37.20	2 33.851		
	Mars, N. P.	11.1	26.1	39.0	49 25.33	2 37.323		
	Mars, S.					2 38.701		1.560
	B. Z., 405, 56	39.2	52.3		51 52.41	2 40.261	2 27.08	2.938
	(° 9)	58.7	12.3	26.2	54 12.40	2 34.021		
	Mars, N. P.		0.5	13.0	54 59.19	2 37.385		
	Mars, S.					2 38.532		1.696
	B. Z., 405, 56			41.6	57 27.32	2 40.228	2 28.13	2.843
	(° 9)	19.3	33.1	46.8	4 0 33.06	2 34.018		
	Mars, N. P.		21.1	33.0	1 19.19	2 37.312		
	Mars, S.					2 38.542		1.756
	B. Z, 405, 56	34.5	48.1	1.7	3 48.10	2 40.298	— 2 28.91	+ 2.986

RESULTS.

		m. s.
Corr. Chron.		+2 6.42

	h. m. s.	° ′ ″
1680, Rumker	5 54 32.03	+26 20 53.19

Mars, S.P.—1680, Rumker

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	4 29 15.48	— 1 56.47	— 1 19.01
	Δ ρ	.00	— .02
	p	— .30	+ 3.49
	Semi D	+ .57	+ 7.70

Mars, N. P.—1680, Rumker.

	h. m. s.	m. s.	′ ″
Sid. T.	4 34 58.15	— 1 57.33	— 0 55.94
	Δ ρ	.00	— .02
	p	— .29	+ 3.48
	Semi D	+ .57	— 7.70

In. Bar. 30.566 Ther. at 77°. Int. 33. Ex. 22.5 A. 5.

Planet disturbed and blazing; star of comparison scarce visible.

MARS.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α.	Δ mic.
49.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
17	(○ 9) - - - - -	28.2	41.7	55.0	4 5 41.63	2 33.971		
	Mars, N. P. - - -		29.3	42.1	6 28.29	2 37.301		
	Mars, S. - - - -					2 38.648		+ 1.601
	B. Z., 405, 56 - -	43.0		10.8	8 56.90	2 40.249	— 2 28.61	2.948
	(○ 9) - - - - -	22.3	36.4	50.0	10 36.23	2 33.860		
						.925		
	Mars, N. P. - - -	9.2	24.7	37.0	11 23.10	2 37.120		
	Mars, S. - - - -					2 38.479		1.668
	B. Z., 405, 56 - -	38.0	51.1	5.0	13 51.36	2 40.085	2 28.26	3.027
						.209		
	(○ 9) - - - - -	3.7	17.2	30.0	16 16.96	2 33.922		
						.880		
	Mars, N. P. - - -	48.2	3.9	16.2	17 2.20	2 37.240		
	Mars, S. - - - -					2 38.598		1.567
	B. Z., 405, 56 - -	18.2	31.7	45.5	19 31.80	2 40.165	2 29.60	2.925
	(○ 9) - - - - -	19.0	33.1		21 33.10	2 33.918		
						.750		
	Mars, N. P. - - -	3.9	19.3	31.7	22 17.80	2 37.151	(Not used.)	
	Mars, S. - - - -					2 38.498		
	(○ 9) - - - - -	41.2	55.1	8.3	39 54.86	2 33.930		
	Mars, N. P. - - -		40.2	51.0	40 38.19	2 36.869		
	Mars, S - - - -					2 38.352		1.527
	B. Z., 405, 56 - -	56.1	9.3	23.2	42 9.53	2 39.879	2 31.34	3.010
	(○ 9) - - - - -	33.7	47.5	1.5	45 47.56	2 33.868		
	Mars, S. P. - - -		32.5		46 31.11	2 38.009		
	Mars, N. - - - -					2 36.851		1.870
	B. Z., 405, 56 - -	48.7	2.3	16.0	49 2.33	2 39.879	2 31.22	3.028
	(○ 9) - - - - -	26.3	39.7		56 39.70	2 37.950		
	Mars, S. P. - - -	8.0	24.1	36.2	57 22.76	2 42.832		
	B. Z., 405, 56 - -	41.5	55.0	9.0	59 55.16	2 44.122	2 32.40	1.290
	(○ 9) - - - - -	17.2	31.0		1 31.00	2 37.830		
	Mars, S. P. - - -	58.3	14.3	26.0	5 2 12.15	2 42.591		
	B. Z., 405, 56 - -	32.1	46.1	59.3	4 45.83	2 44.130	2 33.68	1.539
	(○ 9) - - - - -	38.1	52.3	5.2	7 51.86	2 37.842		
	Mars, S. P. - - -		35.2	47.2	8 33.39	2 42.283		
	B. Z., 405, 56 - -	53.0		20.9	10 6.95	2 44.092	2 33.56	1.809
	(○ 9) - - - - -	22.3	36.0	50.0	15 36.10	2 36.183		
	Mars, N. P. - - -			31.0	16 17.19	2 39.112		
	B. Z., 405, 56 - -	37.2	51.5	5.3	20 51.33	2 42.379	2 34.14	3.267
	(○ 9) - - - - -	14.0	28.1		21 28.10	2 36.140		
	Mars, S. P. . - -	53.9	9.0	22.0	22 7.95	2 40.422		
	B. Z., 405, 56 - -	29.0	43.1	56.1	24 42.73	2 42.309	2 34.78	1.930
						.395		
	(○ 9) - - - - -	41.1		8.2	26 54.65	2 36.069		
	Mars, S. P. - - -	20.8	36.2	49.1	27 34.95	2 40.380		
	B. Z., 405, 56 - -	56.2	9.7	23.2	30 9.70	2 42.303	2 34.75	1.923
	(○ 9) - - - - -	29.1	43.0		58 43.00	2 34.610		
	Mars, N. P. - - -		22.1	34.0	59 20.19	2 37.382		
	B. Z., 405, 56 - -	43.1	57.1	11.0	6 1 57.06	2 40.816	2 36.87	3.434
	(○ 9) - - - - -	28.1	41.9		5 41.90	2 34.853		
	Mars, S. P. - - -		20.2	32.5	6 18.69	2 39.082		
	B. Z., 405, 56 - -	43.1	57.2	10.5	8 56.93	2 41.150	— 2 38.24	+ 2.068
	(○ 9) - - - - -	5.2	19.0		11 19.00	2 34.972	Not used.	
	Mars, N. P. - - -		56.1	9.0	11 55.19	2 37.642		
	B. Z., 405, 56 - -	22.0	36.1	49.5	14 35.86	2 41.249		

RESULTS.

Corr. Chron. m. s. +2 19.18 .20

	α	δ
	h. m. s.	° ′ ″
B. Z., 405, 56	5 46 19.36	+26 26 40.55

Mars, N. P.—B. Z., 405, 56

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	4 21 3.71	—2 29.64	+0 45.98
	Δ ρ	.00	.02
	p	— .30	+ 3.42
	Semi-diam.,	+ .57	— 7.60

Mars, S. P.—B. Z., 405, 56

	h. m. s.	m. s.	′ ″
Sid. T.	4 34 10.55	—2 30.69	+0 26.02
	Δ ρ	.00	.01
	p	— .26	3.35
	Semi-diam.,	+ .57	+ 7.60

In. Bar. 30.28 Ther. At. 78° Int. 44.5 Ex. 36. A. 6.

From 4h to 4h.15, comparisons good; during the remainder the planet blurred and restless.

MARS.

DATE.	OBJECTS.	Observed times of transit.				Mic.		Planet—Star.	
		A.	B.	C.	Mean.			Δα	Δ mic.
1849.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
Dec. 17	(° 9) - - - - -	57.2	11.0		6 16 11.00	2	34.995		
	Mars, S. P. - - -		48.5	0.8	17 46.99	2	39.235		
	B. Z., 405, 56 - -	12.2	26.0	39.6	20 25.93	2	41.288	− 2 38.94	+ 2.053
	(° 9) - - - - -	5.0	19.1		23 19.10	2	35.078		
	Mars, S. P. - - -			8.2	25 54.39	2	39.152		
	B. Z., 405, 56 - -		34.0	47.7	27 33.89	2	41.278	2 39.50	2.126
	(° 9) - - - - -	11.3	25.5	39.0	29 25.26	2	35.071		
	Mars, N. P. - - -	46.3	1.8	13.8	31 0.05	2	37.832		
	B. Z., 405, 56 - -		39.5	54.3	33 39.39	2	41.295	− 2 39.40	+ 3.463
Dec. 27	Mars, S. P. - - -	41.0	56.1	8.0	2 45 54.50	2	39.348		
	B. Z., 405, 28 - - -	57.3	11.4	25.2	48 11.30	2	36.890	− 2 16.80	− 2.458
	Mars, N. P. - - -	31.2	47.1	58.9	51 45.05	2	38.039		
	B. Z., 405, 28 - - -	48.3	1.8	15.8	54 1.96	2	37.028	2 16.81	1.011
	Mars, S. P. - - -	28.1	43.0	55.2	56 41.65	2	39.170	Reject.	
	B. Z., 405, 28 - - -	49.7	3.5	17.5	59 3.56	2	37.061		
							.910		
	Mars, S. P. - - -	29.8	45.1	57.2	3 0 43.50	2	39.141		
	Mars, N. - - - -					2	38.091		1.051
	B. Z., 405, 28 - - -		0.8	15.0	3 0.69	2	37.040	2 17.19	2.101
	Mars, S. P. - - -	6.8	22.1	34.1	7 20.45	2	39.419		
	B. Z., 405, 28 - -	24.1	38.2	52.0	9 38.10	2	37.082	2 17.65	2.337
	Mars, S P. - - -	16.9	32.1	43.8	12 30.35	2	39.128		
	Mars, N. - - - -					2	38.104		1.056
	B. Z., 405, 28 - -	35.2	49.5	3.0	14 49.23	2	37.048	2 18.88	2.080
	Mars, S. P. - - -	7.1	22.2	34.2	16 20.65	2	39.101		
	Mars, N. - - - -					2	38.129		1.080
	B. Z., 405, 28 - -	25.8	39.5	53.1	18 39.46	2	37.041	2 18.81	2.061
	Mars, S. P. - - -	37.1	52.2	3.6	19 50.35	2	39.132		
	Mars, N. - - - -					2	38.112		1.044
	B. Z., 405, 28 - -	55.0	9.2	22.7	22 8.96	2	37.068	2 18.61	2.074
	Mars, S. P. - - -	5.9	20.8	33.3	23 19.60	2	39.390		
	Mars, N. - - - -					2	38.169		1.082
	B. Z., 405, 28 - -	24.8	39.0	52.5	25 38.76	2	37.087	2 19.16	2.303
	Mars, S. P. . . .	27.9	43.1	55.0	26 41.45	2	39.143		
	Mars, N.					2	38.068		1.000
	B. Z , 405, 28 . .	46.6	0.5	14.0	29 0.36	2	37.068	2 18.91	2.075
	Mars, S. P. . . .	6.2		33.4	31 19.80	2	39.463		
	Mars, N.					2	38.133		1.065
	B. Z., 405, 28 . .	15.2	29.1	43.0	33 29.10	2	37.068	2 19.30	2.395
	Mars, S. P. . . .	1.8	17.9	30.0	37 15.90	2	39.409		
	Mars, N.					2	38.188		1.219
	B. Z., 405, 28 . .	22.5	36.5	50.1	39 36 37	2	36.969	2 20.47	2.440
	Mars, S. P. . . .	58.1	13.1	25.0	43 11.55	2	39.490		
	Mars, N.					2	38.105		1.025
	B. Z , 405, 28 . .	18.0	32.0	46.1	45 32.03	2	37.080	2 20.48	2.410
	Mars, S. P. . . .	12.8	28.1		49 26.53	2	39.540		
	Mars, N.					2	38.105		1.075
	B. Z,, 405, 28 . .	33.2	47.1	0.5	51 46.93	2	37.030	2 20.40	2.510
	Mars, S. P. . . .	39.1	55.1	7.0	4 8 53.05	2	39.595		
	Mars, N.					2	38.119		1.218
	B. Z., 405, 28 . .	1.5	15.3	29.0	10 15.27	2	36.901	− 2 22.22	− 2.694

RESULTS.

Corr. Chron. m. s. 2 31.48

	α	δ
	h. m. s.	° ′ ″
B. Z., 405, 28	5 29 37.39	+26 31 24.07

Mars, S. P.—B. Z., 405, 28

		Δα	Δδ
	h. m. s.	m. s.	m. s.
Sid. T.	3 58 34.72	− 2 21.30	− 0 36.09
	Δρ	.00	− .01
	p	− .31	+ 3.38
	Semi D	+ .55	+ 7.30

Mars, N. P.—B. Z., 405, 28.

	h. m. s.	m. s.	″
Sid. T.	3 58 16.36	− 2 21.25	− 0 17.52
	Δρ	.00	.00
	p	− .31	+ 3.38
	Semi D	+ .55	− 7.30

Bar. In. 30.200 Ther. At. 75° Int. 29 Ex. 29 A. 8.

The dome was entirely open during these comparisons; nevertheless, at times they were quite unsatisfactory.

MARS.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
.849.		s.	s	s.	h. m. s.	w.	revs.	m. s.	revs.
:. 27	Mars, S. P. . . .	3. 1	18. 0	30. 0	4 18 16. 55	2	39. 529		
	Mars, N.					2	38. 190		— 1. 110
	B. Z , 405, 28 . .	25. 0	39. 0	52. 7	20 38. 90	2	36. 990	— 2 22. 35	2. 449
							. 171		
	Mars, S. P . . .	39. 2	54. 1	6. 0	23 52. 60	2	39. 440		
	Mars, N.					2	38. 282		1. 341
	B. Z., 405, 28 . .	2. 0	15. 3	29. 0	26 15. 43	2	36. 941	2 22. 83	2. 499
	Mars, S. P. . . .	5. 0	20. 8	33. 0	30 19. 00	2	39. 582		
	Mars, N.					2	38. 278		0. 979
	B. Z., 405, 28 . .	28. 7	43. 1	57. 0	32 42. 93	2	37. 299	2 23. 93	2. 283
	Mars, S. P. . . .		47. 1		37 45. 42	2	39. 530		
	Mars, N.					2	38. 430		1. 498
	B. Z., 405, 28 . .	56. 0	9. 6	23. 0	40 9. 53	2	36. 937	2 24. 11	2. 598
							. 928		
	Mars, S. P. . . .		19. 3	31. 0	42 17. 51	2	39. 260		
	Mars, N.					2	38. 058		1. 125
	B. Z , 405, 28 . .	29. 1	42. 5	56. 0	44 42. 53	2	36. 933	2 25. 02	2. 327
	Mars, S. P. . . .	6. 0	22. 1	33. 7	47 19. 85	2	39. 168		
	Mars, N.					2	38. 032		1. 154
	B. Z., 405, 28 . .	31. 0	45. 2	58. 7	49 44. 97	2	36. 878	2 25. 12	2. 290
	Mars, S. P. . . .	9. 3	25. 2	37. 0	51 23. 15	2	39. 192		
	Mars, N.					2	38. 009		1. 094
	B. Z., 405, 28 . .	34. 2	48. 3	1. 7	53 48. 07	2	36. 915	2 24. 92	2. 277
	Mars, S. P. . . .	24. 1	39. 3		56 37. 91	2	39. 322		
	B. Z., 405, 28 . .	50. 0	4. 1	18. 0	59 4. 03	2	36. 790	2 26. 12	2. 532
	Mars, S. P. . . .		28. 0	39. 2	5 1 25. 71	2	39. 250		
	Mars, N.					2	37. 840		1. 040
	B. Z., 405, 28 . .	37. 2		5. 0	3 51. 10	2	36. 800	— 2 25. 39	— 2. 450
c. 31	Mars, S. P. . . .	19. 1	35. 0	47. 0	3 21 33. 05	2	37. 875		
	Mars, N.						36. 022		+ 6. 296
	B. Z., 405, 15 . .	26. 0		54. 4	21 40. 20	2	42. 318	— 0 7. 15	4. 443
	Mars, S. P. . . .	55. 8	10. 9	23. 0	29 9. 40	2	37. 650		
	Mars, N.					2	35. 960		6. 061
	B. Z , 405, 15 . .			29. 7	29 15. 96	2	42. 021	0 6. 56	4. 371
	Mars, S. P. . . .	10. 8	26. 0	37. 0	32 23. 90	2	37. 688		
	B. Z., 405, 15 . .	17. 2	30. 8	45. 0	32 31. 00	2	42. 012	0 7. 10	4. 324
	Mars, N. P. . . .	33. 7	49. 2	0. 0	35 46. 85	2	35. 739		
	B. Z., 405, 15 . .		54. 8	08. 0	35 54. 98	2	42. 220	0 8. 13	6. 481
	Mars, S. P. . . .	2. 9	18. 5	29. 7	38 16. 30	2	37. 550		
	B. Z., 405, 15 . .	11. 0	24. 3	38. 1	38 24. 47	2	42. 160	0 8. 17	4. 610
	Mars, N. P. . . .	48. 1	3. 5	15. 0	41 1. 55	2	35. 942		
	B. Z., 405, 15 . .	55. 0	9. 0	23. 0	41 9. 00	2	42. 088	0 7. 45	6. 146
	Mars, S. P. . . .	8. 3	24. 0	35. 7	44 22. 00	2	37. 636		
	B. Z., 405, 15 . .	16. 1		43. 5	44 29. 80	2	42. 092	0 7. 80	4. 456
	Mars, N. P. . . .	21. 0	36. 2	48. 0	46 34. 50	2	35. 802		
	B. Z., 405, 15 . .	29. 1	42. 5	56. 0	46 42. 53	2	41. 843	0 8. 03	6. 041
	Mars, S. P. . . .	29. 1	44. 3	55. 8	48 42. 45	2	37. 279		
	B. Z., 405, 15 . .	37. 2	51. 0	4. 6	48 50. 93	2	41. 840	0 8. 48	4. 561
	Mars, N. P. . . .	16. 1	32. 0		4 6 29. 70	2	35. 562		
	B. Z., 405, 15 . .	26. 2	39. 5	53. 0	6 39. 57	2	42. 081	— 0 9. 87	+ 6. 519

RESULTS.

	m. s.
Corr. Chron.	+2 46. 40

	h. m. s.	° ′ ″
B. Z. 405, 15	5 21 43. 94	+26 27 39. 96

Mars, S. P.—B. Z., 405, 15

	h. m. s.	s.	′ ″
Sid. T.	4 9 14. 36	— 0 9. 21	+ 1 9. 09
Δ ρ		. 00	. 02
p		— . 24	3. 15
Semi D		+ . 53	+ 7. 10

Mars, N. P.—B. Z, 405, 15

	h. m. s.	s.	′ ″
Sid. T.	4 12 12. 32	— 0 9. 51	+ 1 32. 78
Δ ρ		. 00	. 03
p		— . 23	+ 3. 13
Semi D		+ . 53	— 7. 10

	In.		°	
Bar.	30. 330	Ther. At	72	
		Int.	31	
			27	
		Ex.	14	A. 8.

These observations unsatisfactory. The planet and star blurred and tremulous.

OCCULTATIONS OF STARS BY THE MOON.

DATE.	OBJECTS.	Mag.		Chron. time.	Corr. chron.	Mean time.	Obs.	REMARKS.
1849.				Mean T.				
				h. m. s.	h m. s.	h. m. s.		
Jan. 5	1203, Rumker . .	9.	Im.	11 34 2.0	— 3 35 2.7	7 58 59.3	C.	
	75, Tauri . . .	6.	Im.	11 40 12.8	35 2.7	8 5 10.1	C.	
	75, Tauri . . .	6.	Em.	12 56 37.0	35 2.7	9 21 34.3	C.	Perhaps a few seconds late.
	B. Z, 330 . . .	9.	Im.	11 56 42.0	35 2.7	8 21 39.3	B.	
	Anonymous . . .	9.	Im.	12 39 51.5	35 2.7	9 4 48.8	C.	Precedes 1391 three seconds: 0.5*s*. north of 1394.
	1391, B. A. C. . .	5.	Im.	12 56 2.0	35 2.6	9 20 59.4	C.	Unsatisfactory.
		5.	Em.	1 50 40.0	35 2.6	10 15 37.4	C.	
	1394, B. A. C. . .	6.	Im.	1 14 39.0	35 2.6	9 39 36.4	C.	
	1406, B. A. C. . .	7.	Im.	2 42 55.5	35 2.6	11 7 52.9	C.	
	α Tauri	1.	Im.	3 48 57.0	35 2.5	12 13 54.5	C.	Instantaneous.
			Em.	4 55 40.0	— 3 35 2.5	13 20 37.5	C.	About four seconds in becoming visibly detached from the moon's limb.
				Sid. T.	m. s.			
Feb. 7	A. Leonis . . .	5.	Im.	6 34 48.0	— 1 4.31	9 21 23.27	F.	Immersion uncertain two seconds.
		5.	Em.	7 29 4.3	1 4.20	10 15 30.79	F.	
Feb. 9	β Virginis . . .	3.5	Im.	6 18 43.0	0 57.66	8 57 35.72	F.	Immersion uncertain two or three seconds.
			Em.	7 11 31.2	0 57.54	9 50 15.39	F.	
March 31	14814, Lalande . .	7.	Im.	8 40 7.3	1 32.28	8 1 27.00	F.	
April 30	A. Leonis . . .	5.	Im.	9 5 34.5	0 19.85	6 30 5.06	F.	Clouds, but observed within one-tenth of a second.
			Em.	10 27 44.2	0 19.91	7 52 1.24	F.	
	3464, B. A. C. . .	7.5	Im.	10 35 39.2	0 19.91	7 59 54.94	F.	
May 2	β Virginis . . .	3.5	Em.	12 20 4.3	0 16.49	9 36 14.53	F.	
July 15	70, Tauri . . .	7.	Im.	23 13 8.0	0 19.77	15 36 30.61	F.	Not well seen, the moon too bright.
	θ^1 Tauri	4.5	Im.	0 23 41.0	0 19.76	16 46 52.05	F.	
	θ^2 Tauri	4.5	Im.	0 26 16.0	0 19.76	16 49 26.64	F.	
22	c. Leonis . . .	5.5	Im.	15 37 48.5	0 3.43	7 35 10.63	F.	Moon's limb not visible—certain within two-tenths of a second.
			Em.	16 15 3.2	— 0 3.38	8 12 19.27	F.	
25	l. Virginis . . .	6.	Im.	15 34 57.2	+ 0 2.18	7 20 37.65	F.	Too late three-tenths of a second.
Aug. 24	5188, B. A. C. . .	7.	Im.	19 48 46.1	+ 1 20.21	9 37 5.54	F.	Very well seen.
Sept. 25	Anonymous . . .		Im.	22 24 28.2	— 0 24.15	10 4 49.05	F.	
	6707, B. A. C. . .		Im.	22 28 51.2	— 0 24.15	10 9 11.34	F.	
Oct. 24	Anonymous . . .		Im.	23 38 0.3	+ 0 30.33	9 25 2.15	F.	
Nov. 23	h^2 Aquar. . . .	7.	Im.	0 11 18.2	1 25.73	8 1 12.60	F.	
	h^1 Aquar. . . .	6.	Im.	0 13 3.3	1 25.73	8 2 57.40	F.	
29	α Tauri	1.	Im.	1 20 36.2	1 35.98	8 46 54.00	F.	The moon full at 10*h*. 17*m*., the dark limb presenting little irregularity. At the immersion a corona of 30 degrees diameter around the moon; the star showing dusky red. The luminous centre of the star was in contact with the bright edge of the moon ten seconds before disparition. At the emersion flying clouds, but star seen at the instant of its reappearance.
			Em.	2 29 53.2	+ 1 36.09	9 55 59.72	F.	

In the column marked "Obs." C. indicates Professor Coffin, B. Professor Benedict, and F. Mr. Ferguson.

OBSERVATIONS

WITH THE

EQUATORIAL,

1850.

NATIONAL OBSERVATORY.

ASTRÆA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.
		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
1850. Jan. 14	Astræa - - - - -	48.6		13.0	5 21 0.80	2	47.685		
	Weisse II, 880 - -	22.0	34.2	47.1	21 34.43	1	45.167	— 0 33.63	— 32.685
	893 - -	16.2	28.5	41.0	22 28.57	1	43.460	1 27.77	34.392
	Astræa - - - - -	12.0		37.3	26 24.65	2	47.795		
	Weisse II, 880 - -	45.8	58.5	11.2	26 58.50	1	45.560	0 33.85	32.402
	893 - -	40.0	52.5	4.0	27 52.17	1	43.728	1 27.52	34.234
	Astræa - - - - -	8.5	21.0	33.0	36 20.83	2	47.610		
	Weisse II, 880 - -	42.2	54.8	7.0	36 54.67	1	45.501	0 33.84	32.176
	893 - -	36.0	48.2	1.5	37 48.57	1	43.772	— 1 27.74	— 34.005
Feb. 5	Astræa - - - - -	40.3	53.0	5.0	4 48 52.77	2	37.529		
	Weisse III, 114 - -		29.0	41.8	49 29.17	1	38.371	— 0 36.40	— 29.325
	Astræa - - - - -	5.0	18.2	30.1	54 17.77	2	37.281		
	Weisse III, 114 - -		53.8	6.2	54 53.62	1	38.481	0 35.85	28.967
	Astræa - - - - -	52.0	5.0	17.5	59 4.83	2	37.308		
	Weisse III, 114 - -			53.0	5 0 40.38	1	38.463	0 35.55	29.012
	Astræa - - - - -	6.0	19.0		5 18.92	2	36.880		
	Weisse III, 114 - -		55.0	8.0	5 54.92	1	38.460	0 36.00	28.587
	Astræa - - - - -	51.8	4.0	16.5	10 4.10	2	36.908		
	Weisse III, 114 - -	28.2		53.0	10 40.60	1	38.450	0 36.50	28.625
	Astræa - - - - -	10.5	23.7	35.9	14 23.37	2	36.734		
	Weisse III, 114 - -	46.1		11.5	14 58.80	1	38.356	0 35.43	28.545
	Astræa - - - - -	21.0	33.7	46.0	18 33.57	2	36.550		
	Weisse III, 114 - -		9.2	21.8	19 9.22	1	38.492	0 35.65	28.225
	Astræa - - - - -	56.0	8.4	21.0	22 8.47	2	36.652		
	Weisse III, 114 - -	31.2	43.8	56.3	22 43.77	1	38.419	0 35.30	28.400
	Astræa - - - - -	23.5	36.2	48.9	25 36.20	2	36.635		
	Weisse III, 114 - -	58.3		23.7	26 11.00	1	38.373	0 34.80	28.429
	Astræa - - - - -	19.5	31.8	44.0	30 31.77	2	36.410		
	Weisse III, 114 - -	54.1	6.3	19.2	31 6.53	1	38.540	— 0 34.76	— 28.037
Feb. 11	Weisse III, 172 - -	7.5	20.0	32.0	6 7 19.83	3	36.577	+ 2 31.00	+ 44.651
	Astræa - - - - -			3.0	9 50.83	2	21.838		
	Weisse III, 172 - -	39.5	52.0	4.8	13 52.10	3	36.503	2 29.60	44.679
	Astræa - - - - -		22.0	34.0	16.21.70	2	21.736		
	Weisse III, 172 - -	43.2	55.8	0.8	30 55.67	3	36.528	2 31.46	45.020
	Astræa - - - - -	15.0	27.3	39.1	33 27.13	2	21.420		
	Weisse III, 172 - -	9.5	22.5	35.0	35 22.33	3	36.565	2 31.90	45.062
	Astræa - - - - -	41.7	54.0	7.0	37 54.23	2	21.408		
	Weisse III, 172 - -	16.1	27.9	40.0	40 28.00	3	36.528	2 30.75	45.271
	Astræa - - - - -	46.5	59.0		42 58.75	2	21.169		
	Weisse III, 172 - -	51.8	4.3	17.5	44 4.53	3	36.509	2 32.03	45.291
	Astræa - - - - -	24.1	36.0		47 36.56	2	21.130		
	Weisse III, 172 - -	18.2		43.5	50 30.85	3	36.538	2 32.15	45.292
	Astræa - - - - -	50.0	3.0		54 3.00	2	21.158		
	Weisse III, 172 - -	50.2	2.3	15.2	56 2.57	3	36.521	+ 2 30.93	+ 45.483
	Astræa - - - - -		33.5		58 33.50	2	20.950		

RESULTS.

1850, Jan. 14

Corr. to Chron. — 1 42.90 (m. s.)

	α (h. m. s.)	δ (° ′ ″)
Weisse II, 880,	2 50 18.88	+ 9 35 50.74
Weisse II, 893,	2 51 12.30	9 36 20.09

Astræa — Weisse II, 880,	h. m. s.	Δα (m. s.)	Δδ (′ ″)
Sid. T.	5 26 12.53	— 0 33.77	— 8 18.29
$\Delta\rho$		.00	— .21
p		+ .15	+ 2.42

Astræa — Weisse II, 893.		Δα	Δδ
Sid. T.	50 26 12.53	— 1 27.68	— 8 45.78
$\Delta\rho$		.00	— .23
p		+ .15	+ 2.42

Feb. 5

Corr. to Chron. — 1 3.76 (m. s.)

	α (h. m. s.)	δ (° ′ ″)
Weisse III, 114,	3 6 43.19	+ 11 44 49.09

Astræa — Weisse III, 114,	h. m. s.	Δα (m. s.)	Δδ (′ ″)
Sid. T.	5 9 49.41	— 0 35.62	— 7 19.80
$\Delta\rho$		.00	— .17
p		+ .11	+ 1.99

Feb. 11

Corr. to Chron. — 52.11 (s.)

	α (h m. s.)	δ (° ′ ″)
Weisse III, 172,	3 10 0.48	+ 12 16 9.22

Astræa — Weisse III, 172,	h. m. s.	Δα (m. s.)	Δδ (′ ″)
Sid. T.	6 36 43.61	+ 2 31.23	+ 11 33.07
$\Delta\rho$		— .01	.32
p		+ .17	+ 2.08

ASTRÆA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Feb. 14	Weisse III, 205 -	7.3	20.0	32.1	4 27 19.80	2 33.938	+ 4 16.85	— 3.891	s.
	Astræa - - - -	24.0	37.0		31 36.65	2 37.829			Corr. to Chron. — 45.70
	Weisse III, 205 -	3.8	16.0	28.6	35 16.13	2 33.955	4 17.38	3.592	α δ
	Astræa - - - -	21.0			39 33.51	2 37.547			h. m. s. ° ′ ″
	Weisse III, 205 -	5.2	17.9	30.2	41 17.77	2 33.883	4 17.23	3.459	Weisse III, 205, 3 11 35.62 +12 49 36.10
	Astræa - - - -	22.0	35.0	18.0	45 35.00	2 37.342			Astræa—Weisse III, 205, Δ α Δ δ
	Weisse III, 205 -	9.2	21.6	34.2	47 21.67	2 33.979	4 17.73	3.390	h. m. s. m. s. ′ ″
	Astræa - - - -	26.7	39.5	52.0	51 39.40	2 37.369			Sid. T. 4 47 54.93 + 4 17.78 — 0 52.65
	Weisse III, 205 -	53.1	5.7	18.2	54 5.67	2 34.120	4 18.55	3.200	Δ ρ .00 — .02
	Astræa - - - -		24.0	37.0	58 24.22	2 37.320			p + .09 + 1.81
	Weisse III, 205 -	43.1	56.0	9.0	5 0 56.03	2 34.148	+ 4 18.97	— 3.024	
	Astræa - - - -	2.1	15.0		5 15.00	2 37.172			
Feb. 16	Weisse III, 306 -	54.1	6.2	18.2	6 21 6.17	2 38.172	+ 0 57.50	— 5.960	s.
	Astræa - - - -		3.4	16.2	22 . 3.67	2 44.132			Corr. to Chron. — 42.62
	Weisse III, 306 -	2.3	14.6	27.1	26 14.67	2 38.390	0 57.83	5.673	α δ
	Astræa - - - -	0.2		24.8	27 12.50	2 44.063			h. m. s. ° ′ ″
	Weisse III, 306 -	33.2	45.8	58.2	30 45.73	2 38.436	0 58.47	5.623	Weisse III, 306, 3 17 24.19 +13 5 11.49
	Astræa - - - -	32.2	44.3	56.0	31 44.17	2 44.059			Astræa—Weisse III, 306, Δ α Δ δ
	Weisse III, 306 -	36.2	49.0	1.3	43 48.63	2 38.028	0 59.16	5.524	h. m. s. m. s. ′ ″
	Astræa - - - -			0.2	44 47.79	2 43.552			Sid. T. 7 17 45.83 + 1 1.06 — 0 55.07
	Weisse III, 306 -	41.0	53.7	6.5	50 53.73	2 38.002	0 59.87	5.276	Δ ρ .00 — .03
	Astræa - - - -	41.2	53.6	6.0	52 53.60	2 43.278			p + .18 + 2.06
	Weisse III, 306 -	41.2	54.0	6.0	7 52 53.73	2 37.070	1 2.70	3.812	
	Astræa - - - -	44.0	56.1	9.2	53 56.43	2 40.882			
	Weisse III, 306 -	30.8	43.1	55.8	56 43.23	2 36.872	1 2.77	3.738	
	Astræa - - - -		46.0		57 46.00	2 40.610			
	Weisse III, 306 -	39.1	51.6	4.0	59 51.57	2 37.362	1 4.20	3.068	
	Astræa - - - -		55.0	7.0	8 0 55.77	2 40.430			
	Weisse III, 306 -	42.1	54.2	7.1	3 54.47	2 36.662	1 4.12	3.680	
	Astræa - - - -			11.0	4 58.59	2 40.342			
	Weisse III, 306 -	9.3	22.0		7 22.00	2 37.672	+ 1 4.00	— 3.475	
	Astræa - - - -		26.0	38.0	8 26.00	2 41.147			
Feb. 17	Weisse III, 306 -	8.5	21.3	32.7	6 7 20.83	3 43.395	+ 2 10.68	+ 22.637	s.
	Astræa - - - -			44.0	9 31.51	2 50.670			Corr. to Chron. — 41.04
	Weisse III, 306 -	58.0	11.2	23.7	19 10.97	3 43.323	2 10.98	22.513	α δ
	Astræa - - - -	9.2		34.7	21 21.95	2 50.722			h. m. s. ° ′ ″
	Weisse III, 306 -	23.5	36.0	49.1	30 36.20	3 42.619	2 11.51	23.065	Weisse III, 306, 3 17 24.17 +13 5 11.44
	Astræa - - - -	35.1	47.5		32 47.75	2 49.466			
	Weisse III, 306 -	55.2	7.5	19.9	53 7.53	3 42.582	2 12.77	23.181	Astræa—Weisse III, 306, Δ α Δ δ
	Astræa - - - -	8.1	20.3	32.5	55 20.30	2 49.313			h. m. s. m s. ′ ″
	Weisse III, 306 -	10.6	23.2	36.0	7 17 23.27	3 42.618	2 13.23	23.690	Sid. T. 6 49 3.28 + 2 12.25 + 5 56.05
	Astræa - - - -	24.0		49.0	19 36.50	2 48.840			Δ ρ .00 .17
	Weisse III, 306 -	21.3	33.5	46.0	27 33.60	3 42.509	+ 2 14.33	+ 23.910	p + .16 + 1.99
	Astræa - - - -	35.5	48.0	0.3	29 47.93	2 48.511			

ASTRÆA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
. 19	Astræa		39. 5	51. 0	5 45 39. 50	1	45. 570		
	Weisse III, 447 . .	24. 3	36. 5	49. 2	48 36. 67	2	51. 338	— 2 57. 17	+ 35. 935
	Astræa		45. 0	57. 0	51 45. 00	1	45. 180		
	Weisse III, 447 . .		43. 0	56. 0	54 43. 00	2	51. 312	2 58. 00	36. 299
	Astræa			47. 5	59 35. 03	1	45. 179		
	Weisse III, 447 . .	20. 3	32. 5	45. 0	6 2 32. 60	2	51. 268	2 57. 57	36. 156
	Astræa		20. 0		5 20. 00	1	45. 039		
	Weisse III, 447 . .	4. 6	17. 5	29. 5	8 17. 20	2	51. 250	2 57. 20	36. 378
	Astræa			20. 0	11 7. 43	1	44. 810		
	Weisse III, 447 . .	52. 0	4. 3	16. 8	14 4. 37	2	51. 302	2 56. 94	36. 659
	Astræa	5. 2		30. 5	7 53 17. 85	1	38. 678		
	Weisse III, 447 . .	56. 0	8. 5	21. 0	56 8. 50	2	46. 869	2 50. 65	38. 358
	Astræa	19. 2	31. 0		7 59 31. 00	1	38. 249		
	Weisse III, 447 . .	10. 0	22. 2	34. 8	8 2 22. 23	2	46. 789	2 51. 23	38. 707
	Astræa	41. 2	53. 5	6. 0	4 53. 57	1	38. 141		
	Weisse III, 447 . .	32. 7	45. 0	58. 2	7 45. 30	2	46. 710	— 2 51. 73	+ 38. 736
. 22	Astræa		51. 0		5 19 51. 00	2	39. 702		
	Weisse III, 474 . .	56. 0	9. 5	22. 1	20 9. 20	3	38. 425	— 0 18. 20	+ 28. 635
	Astræa	4. 1	16. 3	29. 0	23 16. 47	2	39. 765		
	Weisse III, 474 . .	22. 0	34. 2	47. 1	23 34. 43	3	38. 542	0 17. 96	28. 689
	Astræa	40. 2	52. 3	5. 0	26 52. 50	2	39. 610		
	Weisse III, 474 . .	57. 3		23. 0	27 10. 15	3	38. 595	0 17. 65	28. 897
	Astræa	36. 5	49. 0	1. 3	29 48. 93	2	39. 590		
	Weisse III, 474 . .	54. 2	6. 8	19. 0	30 6. 67	3	38. 410	0 17. 74	28. 732
	Astræa	34. 3	46. 0	59. 0	32 46. 43	2	39. 479		
	Weisse III, 474 . .	52. 1	4. 3	17. 0	33 4. 47	3	38. 500	0 18. 04	28. 933
	Astræa	2. 3	14. 3	27. 2	5 35 14. 60	2	39. 585		
	Weisse III, 474 . .		32. 0	44. 4	35 32. 05	3	38. 520	0 17. 45	28. 847
	Astræa	31. 5	43. 7	56. 0	7 35 43. 73	2	47. 155		
	Weisse III, 474 . .	42. 0	54. 3	7. 2	35 54. 50	3	48. 276	0 10. 77	31. 033
	Astræa	35. 2	47. 5	59. 7	38 47. 47	2	47. 078		
	Weisse III, 474 . .	46. 0	58. 3	11. 0	38 58. 43	3	48. 272	0 10. 96	31. 106
	Astræa	15. 7	28. 2	41. 0	43 28. 30	2	46. 890		
	Weisse III, 474 . .	26. 5	39. 0	51. 3	43 38. 93	3	48. 442	0 10. 63	31. 464
	Astræa	3. 5	16. 3	29. 0	46 16. 26	2	46. 718		
	Weisse III, 474 . .	14. 2	27. 0		46 26. 96	3	48. 245	0 10. 70	31. 439
	Astræa	41. 0	53. 3	6. 0	49 53. 43	2	46. 565		
	Weisse III, 474 . .	52. 0	4. 5		50 4. 53	3	48. 230	0 11. 10	31. 577
	Astræa	27. 3	40. 0	53. 0	52 40. 10	2	46. 500		
	Weisse III, 474 . .	37. 5	50. 0		52 50. 20	3	48. 232	— 0 10. 10	+ 31. 644
b. 23	Weisse III, 474 . .	11. 2	23. 3	36. 0	5 33 23. 50	3	41. 637	+ 1 2. 17	+ 57. 508
	Astræa	13. 3	26. 2	37. 5	34 25. 67	1	44. 209		
	Weisse III, 474 . .	30. 8	43. 2	56. 0	46 43. 33	3	41. 639	+ 1 2. 74	+ 57. 574
	Astræa	33. 2	46. 0	59. 0	47 46. 07	1	44. 145		

RESULTS.

Corr. Chron.		s. —38. 02

	α	δ
	h. m. s.	° ′ ″
Weisse III, 447,	3 25 1. 69	+13 23 57. 71

Astræa—Weisse III, 447,		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	6 20 45. 65	— 2 55. 06	+9 31. 04
	Δ ρ	. 00	. 23
	p	+ . 14	+ 1. 87

Corr. Chron.		s. —33. 91

	α	δ
	h. m. s.	° ′ ″
Weisse III, 474,	3 26 12. 96	+13 39 56. 06

Astræa—Weisse III, 474		Δ α	Δ δ
	h. m. s.	s.	′ ″
Sid. T.	6 35 24. 36	—0 14. 27	+7 42. 37
	Δ ρ	. 00	. 20
	p	+ . 15	+ 1. 85

(Continued.)

ASTRÆA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.	RESULTS.
		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
1850. March 4	Astræa	2.5			8 8 14.93	3	26.735			Corr. Chron. s. —16.11
	Weisse III, 774 . .	22.0	34.5	47.1	8 34.53	2	33.367	— 0 19.60	— 23.280	
	Astræa	49.0	52.6		10 52.53	3	26.548			α h. m. s. δ ° ′ ″
	Weisse III, 774 . .	1.0	13.6	26.0	11 13.53	2	33.350	0 21.00	23.110	Weisse III, 774, 3 40 25.82 +15 7 6.44
	Astræa	49.7	2.3		15 2.23	3	26.410			Astræa—Weisse III, 774, Δα Δδ
	Weisse III, 774 . .	9.6	22.0	34.5	15 22.03	2	33.248	0 19.80	23.074	h. m. s. s. ′ ″
	Astræa	39.5			17 51.93	3	26.320			Sid. T. 8 8 19.31 —0 20.46 —5 56.38
	Weisse III, 774 . .	0.2	12.4	25.0	18 12.53	2	33.349	— 0 20.60	— 22.883	Δρ — .01 .23
										p + .18 — 1.93
March 5	Weisse III, 774 . .	32.0		57.5	6 37 44.75	1	58.701	+ 1 3.35	+ 3.079	Corr. Chron. s. —14.98
	Astræa		48.1	0.3	38 48.10	1	55.622			α h. m. s. δ ° ′ ″
	Weisse III, 774 . .	31.8	44.7	57.5	44 44.67	1	58.770	1 3.16	3.035	Weisse III, 774, 3 40 25.80 +15 7 6.41
	Astræa	35.0	47.5	1.0	45 47.83	1	55.735			
	Weisse III, 774 . .	23.0	35.6	48.2	50 35.60	1	58.782	+ 1 4.40	+ 3.304	Astræa—Weisse III, 774, Δα Δδ; h. m. s. m. s. ′ ″
	Astræa	27.5	39.7	53.0	51 40.06	1	55.478			Sid. T. 6 45 10.35 +1 3.64 +0 48.24
										Δρ .00 .02
										p + .14 + 1.69
March 10	(○ 2)		6.5	19.2	7 9 6.72	2	37.353	+ 1 9.75	+ 2.691	
	Astræa	4.2	16.2	29.0	10 16.47	2	34.662			
	(○ 2)	36.0	48.3	1.0	15 48.43	2	37.391	1 11.07	2.773	
	Astræa	47.0		12.0	16 59.50	2	34.618			
	(○ 2)	53.5	6.0		24 6.06	2	37.620	1 9.80	3.164	
	Astræa	3.1	16.0	28.5	25 15.86	2	34.456			Corr. Chron. s. —6.83
	(○ 2)	15.0	27.5		27 27.53	2	37.390	1 10.90	3.095	Astræa—(○ 2)
	Astræa	26.3	38.0	51.0	28 38.43	2	34.295			h. m. s. m. s. ′ ″; Sid. T. 7 33 22.75 +1 11.06 +0 48.40
	(○ 2)	54.8	7.1	20.0	34 7.30	2	37.292	1 11.40	2.992	Δρ .00 .02
	Astræa	6.0	19.1	31.0	35 18.70	2	34.300			p + .16 + 1.72
	(○ 2)	36.2	49.0	1.5	38 48.90	2	37.489	1 10.50	3.437	
	Astræa		59.5	12.1	39 59.45	2	34.052			
	(○ 2)	49.1	2.3	14.8	51 2.07	2	37.323	1 12.23	3.491	
	Astræa	1.5		27.1	52 14.30	2	33.832			
	(○ 2)	48.7	1.1	13.4	58 1.07	2	37.292	+ 1 12.86	+ 3.555	
	Astræa	1.3	14.0	26.5	59 13.93	2	33.737			
March 11	(○ 2)	6.3	19.0		6 49 19.00	2	37.385	+ 2 50.00	+ 8.573	
	Astræa		9.0	22.0	52 9.00	2	28.812			Corr. Chron. s. —5.20
	(○ 2)	13.2	26.1	39.0	59 26.10	2	37.399	2 49.97	8.880	
	Astræa	3.5	16.0	28.7	7 2 16.07	2	28.519			Astræa—(○ 2)
	(○ 2)	57.1	9.3	22.0	6 9.47	2	37.479	2 50.80	8.990	h. m. s. m. s. ′ ″; Sid. T. 7 15 29.32 +2 50.97 +2 19.46
	Astræa			13.0	9 0.27	2	28.489			Δρ .00 .06
	(○ 2)	43.7	57.1	9.5	11 56.77	2	37.387	2 50.90	9.157	p + .15 + 1.67
	Astræa	35.1	47.7	0.2	14 47.67	2	28.230			
	(○ 2)	34.1	46.1	59.0	46 46.40	2	37.212	+ 2 53.20	+ 9.771	
	Astræa	27.3	39.5	52.0	49 39.60	2	27.441			

MARS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Jan. 5	Mars, S. P. - - -	11.8	27.1	39.0	2 55 25.40	2 44.182		
	B. Z., 523, 15 - -	23.0	36.0	49.5	57 36.17	2 36.419	— 2 10.77	— 7.763
	Mars, S. P. - - -	28.9	44.1	56.0	3 6 42.50	2 44.060		
	B. Z., 523, 15 - -	40.3	53.5	7.0	8 53.60	2 36.113	2 11.10	7.947
	Mars, N. P. - - -	42.8	58.6	10.5	10 56.65	2 42.598		
	B. Z., 523, 15 - -	54.7	8.2	22.5	13 8.47	2 36.139	2 11.82	6.459
	Mars, S. P. - - -	55.8	11.0	23.1	15 9.45	2 43.982		
	B. Z., 523, 15 - -	7.3	21.4	34.8	17 21.17	2 35.952	2 11.72	8.030
	Mars, N. P. - - -	50.0	5.3	17.9	19 3.95	2 42.649		
	B. Z.. 523, 15 - -	2.7	15.7	29.0	21 15.80	2 35.982	2 11.85	6.667
	Mars, S. P. - - -	5.6	21.3	33.0	23 19.30	2 43.910		
	B. Z., 523, 15 - -	18.0	31.5	45.0	25 31 50	2 35.859	2 12.20	8.051
	Mars, N. P. - - -	15.8	31.3	43.0	27 29.40	2 42.653		
	B. Z., 523, 15 - -	28.3	42.0	55.5	29 41.93	2 35.761	2 12.53	6.892
	Mars, S P. - - -	34.9	50.2	2.0	33 48.45	2 43.870		
	B. Z., 523, 15 - -	47.0	1.3	15.2	36 1.17	2 35.777	2 12.72	8.093
	Mars, S. P. - - -	54.0	9.2	21.8	38 7.90	2 43.815		
	B. Z., 523, 15 - -	7.0	21.0	34.0	40 20.66	2 35.940	2 12.76	7.875
	Mars, N . P. - - -	30.8	45.9	57.9	59 44.35	2 42.611		
	B. Z., 523, 15 - -	45.0		12.5	4 1 58.75	2 36.010	2 14.40	6.601
	Mars, S. P. - - -	24.9	40.3	51.8	4 38.35	2 44.165		
	B. Z., 523, 15 - -		52.3	6.0	6 52.27	2 35.871	2 13.92	8.294
	Mars, N. P. - - -	18.0	33.2	45.5	8 31.75	2 42.672		
	B. Z , 523, 15 - -	31.9	46.3	0.3	10 46.17	2 35.920	2 14.42	6.752
	Mars, S. P. - - -	48.7	3.5	16.2	13 2.45	2 43.860		
	B. Z , 523, 15 - -	2.5	16.0		15 15.97	2 35.791	2 13.52	8.609
	Mars, N. P. - - -	39.2	54.2	6.0	16 52.60	2 42.649		
	B. Z., 523, 15 - -	54.1	7.5		19 7.47	2 35.802	2 14.87	6.847
	Mars, S. P. - - -	20.9	36.2	48.0	23 34.45	2 43.923		
	B. Z., 523, 15 - -	36.0	49.5		25 49.47	2 35.728	2 15.02	8.195
	Mars, N. P - - -	16.0	31.0	43.0	27.29.50	2 42.521		
	B. Z., 523, 15 - -	30.1	44.0		29 43.97	2 35.611	2 14.47	6.910
	Mars, S. P. - - -	18.9	34.3	47.1	31 33.00	2 43.185		
	B. Z., 523, 15 - -	34.3	48.0		33 47.97	2 35.640	2 14.97	7.545
	Mars, N. P. - - -	3.9	19.3	31.3	36 17.60	2 42.691		
	B. Z., 523, 15 - -	20.0	33.5		38 33.47	2 35.657	2 15.87	7.034
	Mars, S. P. - - -	12.2	27.3	39.0	40 25.60	2 43.942		
	B. Z., 523, 15 - -	27.5	41.3		42 41.27	2 35.701	2 15.67	8.241
	Mars, N. P. - - -	11.2	26.3	38.2	44 24.70	2 42.157		
	B. Z., 523, 15 - -	26.5	41.0		46 40.97	2 35.490	2 16.27	6.667
	Mars, S. P. - - -	21.2	36.7	49.1	49 35.15	2 43.819		
	B. Z., 523, 15 - -	38.0	51.2		51 51.17	2 35.506	2 16.02	8.313
	Mars, N. P. - - -	56.5	11.8	24.0	54 10.25	2 42.535		
	B. Z., 523, 15 - -	53.0			56 26.72			
	Mars, N. P. - - -	56.8	12.0	24.0	5 0 0.40	2 42.405		
	B. Z., 523, 15 - -	14.0		41.0	2 27.50	2 35.440	— 2 17.10	— 6.965

RESULTS.

		m. s.
Corr. to Chron.		— 1 3.10
		.08

	α h m. s.	δ ° ′ ″
B. Z , 523, 15,	5 17 48.71	+ 26 26 47.07

Mars, S. P.—B. Z , 523, 15,

	h. m. s.	Δα m. s.	Δδ ′ ″
Sid. T.	4 1 35.25	— 2 13.73	— 2 2.00
	Δρ	.00	— .04
	p	— .24	+ 3.04
	Semi-diam.,	+ .61	+ 9.16

Mars, N. P.—B. Z., 528, 15.

	h. m. s.	m. s.	′ ″
Sid. T.	4 24 45.35	— 2 15.11	— 1 44.25
	Δρ	.00	.03
	p	— .17	2.96
	Semi-diam.,	+ .61	— 9.16

Night misty; star of comparison indistinct.—A. 6.

In.		°
Bar. 30.342	Therm. Att.	77
	Ex.	24

Between the observations of the 31st December, 1849, and 5th January, 1850, the chronometer had been set forward 4 minutes.

MARS.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
5	Mars, S. P. - - -	30.0	45.0	57.0	5 49 43.50	2 43.128		
	B. Z., 523, 15 - -	48.5	3.0		52 3.97	2 34.751		
	Mars, N. P. - - -	21.9	37.2	49.3	54 35.60	2 41.842		
	B. Z., 523, 15 - -	40.2	54.0		56 53.97	2 34.912	− 2 18.37	− 6.930
	Mars, S. P. - - -	43.0	58.3	10.0	58 56.50	2 43.142		
	B. Z., 523, 15 - -	1.2	14.5	28.2	6 1 14.63	2 34.912	2 18.13	8.230
	Mars, N. P. - - -	48.0	4.0	15.3	4 1.65	2 41.707		
	B. Z., 523, 15 - -	7.0	21.0		6 20.97	2 35.039	− 2 19.32	− 6.668
9	Mars, N. P. - - -	55.1	10.9	22.8	2 53 8.95	2 55.391		
	B. Z., 523, 15 - -	54.3	8.0	22.0	59 8.10	1 62.939	− 5 59.15	− 22.603
	Mars, S. P. - - -	15.1	30.9	43.1	3 1 29.10	2 56.779		
	B. Z., 523, 15 - -	15.2	29.0	42.0	7 28.73	1 63.064	5 59.63	23.866
	Mars, S. P. - - -	1.8	16.2	28.9	11 15.35	2 56.668		
	B. Z., 523, 15 - -	2.0	15.0	29.0	17 15.33	1 63.145	5 59.98	23.674
	Mars, N. P. - - -	42.2	57.5	9.1	18 55.65	2 55.545		
	B. Z., 523, 15 - -	43.2		10.3	24 56.75	1 63.222	6 1.10	22.474
	Mars, S. P. - - -	33.1	48.3	0.9	26 47.00	2 56.662		
	B. Z., 523, 15 - -	34.1	47.3	1.5	32 47.63	1 63.110	6 0.63	23.703
	Mars, N. P. - - -	2.4	18.0	30.2	35 16.30	2 55.631		
	B. Z., 523, 15 - -	3.7	17.0	31.0	41 17.23	1 63.480	6 0.93	22.302
	Mars, S. P. - - -	13.2	28.1	40.7	44 26.95	2 56.662		
	B. Z., 523, 15 - -	15.5	29.0	42.8	50 29.10	1 63.389	6 2.15	23.424
	Mars, N. P. - - -	31.1	46.2	58.7	54 44.90	2 55.703		
	B. Z., 523, 15 - -	32.7	47.0	0.8	4 0 46.83	1 63.128	6 1.93	22.726
	Mars, S. P. - - -	28.7	44.1	56.2	12 42.45	2 56.857		
	B. Z., 523, 15 - -	30.9	45.0	59.1	18 45.00	1 63.271	6 2.55	23.737
	Mars, N. P. - - -	0.2	15.3	27.7	21 13.95	2 55.880		
	B. Z., 523, 15 - -	3.0	16.5	30.0	27 16.50	1 63.272	6 2.55	22.759
	Mars, S. P. - - -	25.8	41.0	53.5	29 39.65	2 56.780		
	B. Z., 523, 15 - -	29.1	43.0		35 42.91	1 63.265	6 3.26	23.666
	Mars, N. P. - - -	47.1	2.4	14.7	40 0.90	2 55.710		
	B. Z., 523, 15 - -	49.7	3.6	18.0	46 3.77	1 63.190	6 2.87	22.671
	Mars, S. P. - - -	3.2	18.3	30.2	5 16 16.70	2 59.301		
	B. Z., 523, 15 - -	7.1	21.3	35.0	22 21.13	1 66.010	6 4.43	23.441
	Mars, N. P - - -	20.1	36.0	48.1	25 34.10	2 58.122		
	B. Z., 325, 15 - -	24.0	39.0	53.0	31 38.66	1 65.341	− 6 4.56	− 22.932
12	B. Z., 396, 127 - -	0.8	14.0	28.1	2 38 14.30	2 35.931	+ 6 30.05	+ 5.012
	Mars, S. P. - - -	30.8	46.1	57.9	44 44.35	2 30.919		
	B. Z., 396, 127 - -	50.0	4.2	17.9	46 4.03	2 35.856		
	Mars, N. P. - - -	20.0	35.1	47.0	52 33.50	2 29.919		

RESULTS.

Corr. Chron.' — 0 54.20 s.

		α	δ
		h. m. s.	° ′ ″
B. Z., 523, 15		5 17 48.70	+ 26 26 47.21

Mars, S. P.—B. Z., 523, 15,

	h. m. s.	Δ α (m. s.)	Δ δ (′ ″)
Sid. T.	3 53 45.40	— 6 0.37	— 6 3.44
Δρ		.00	— .11
p		— .26	+ 3.03
Semi-diam.,		+ .58	+ 8.78

Mars, N. P.—B. Z., 523, 15.

	h. m. s.	m. s.	′ ″
Sid. T.	4 0 22.19	— 6 1.73	— 5 47.98
Δρ		.00	— .10
p		— .24	+ 2.98
Semi-diam.,		+ .58	— 8.78

The night misty; star of comparison scarce visible.—A. 7.

	In.		°
Bar.	30.164	Ther. At.	76
		Ex.	33

(Continued.)

MARS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Jan. 12	B Z., 396, 127 - -	3. 2	17. 1	31. 0	2 54 17. 10	2 36. 080	+ 6 29. 30	+ 4. 900
	Mars, S. P. - - -	33. 1	48. 1	59. 7	3 0 46. 40	2 31. 180		
	B. Z., 396, 127 - -	28. 7	42. 0	55. 7	2 42. 13	2 36. 062		
	Mars, N. P. - - -		12. 5	24. 2	9 10. 79	2 29. 872		
	B. Z., 396, 127 - -	54. 2	8. 0	21. 2	11 7. 80	2 36. 061	6 28. 20	4. 840
	Mars, S. P. - - -	22. 0	38. 1	50. 0	17 36. 00	2 31. 221		
	B. Z., 396, 127 - -	54. 0	7. 0	20. 8	21 7. 27	2 36. 189	6 28. 28	4. 831
	Mars, S. P. - - -	22. 1	37. 1	49. 0	27 35. 55	2 31. 358		
	B. Z, 396, 127 - -	26. 3	40. 0	53. 8	30 40. 03	2 36. 181		
	Mars, N. P. - - -	53. 9	9. 1	21. 3	37 7. 60	2 30. 333		
	B. Z., 396, 127 - -	9. 2	22. 3	36. 2	39 22. 57	2 36. 225	6 27. 33	4. 966
	Mars, S. P. - - -	35. 8	51. 0	4. 0	45 49. 90	2 31. 259		
	B. Z., 396, 127 - -	44. 2	57. 9	11. 2	47 57. 76	2 36. 340		
	Mars, N. P. - - -	12. 9	27. 9	39. 8	54 26. 35	2 30. 449		
	B. Z., 396, 127 - -	43. 5	57. 7	11. 0	56 57. 40	2 36. 468	6 27. 65	4. 766
	Mars, S. P. - - -	11. 2	26. 2	38. 9	4 3 25. 05	2 31. 702		
	B. Z., 396, 127 - -	34. 2	48. 3	2. 0	5 48. 17	2 36. 407		
	Mars, N. P. - - -	1. 8	16. 9	29. 0	12 15. 40	2 30. 629		
	B. Z, 396, 127 - -	41. 2	55. 2	8. 7	13 55. 03	2 36. 411	6 27. 07	4. 621
	Mars, S. P. - - -	8. 2	23. 5	36. 0	20 22. 10	2 31. 790		
	B. Z., 396, 127 - -	47. 4	1. 3	15. 3	23 1. 33	2 35. 730		
	Mars, N. P. - - -	14. 8	30. 2	42. 3	29 28. 55	2 29. 839		
	B. Z., 396, 127 - -	2. 5	16. 0	29. 7	42 16. 07	2 35. 635	+ 6 26. 58	+ 4. 676
	Mars, S. P. - - -	29. 1	43. 5	56. 2	48 42. 65	2 30. 959		

RESULTS.

Corr. Chron. s. —45. 67

		α h. m. s.	δ ° ′ ″
B. Z., 396, 127,		5 3 5. 89	+26 16 13. 62

Mars, S. P—B. Z., 396, 127,

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	3 40 09. 58	+6 28. 06	+1 12. 26
	Δ ρ	+ . 00	. 02
	p	. 27	3. 02
	Semi-diam.,	+ . 57	+ 8. 59

Mars, N. P.—B. Z., 396, 127.

	h. m. s.	m. s.	′ ″
Sid. T.	3 41 44. 69	+6 28. 12	+1 30 78
	Δ ρ	. 00	. 03
	p	— . 26	+ 3. 02
	Semi-diam.,	+ . 57	— 8. 59

Planet blurred; interrupted by clouds continuing the rest of the night.—A. 8.

In. Bar. 29. 950 Ther. At. 75° Ex. 41. 5

DATE.	OBJECTS.	A.	B.	C.	Mean.	Mic.	Δ α	Δ mic.
Jan. 14	B. Z., 396, 127 - -	0. 3	12. 7	27. 1	4 10 13. 37	2 35. 009	+ 5 16. 23	— 3. 432
	Mars, S. P. - - -	16. 2	31. 4	43. 0	15 29. 60	2 38. 441		
	B. Z., 396, 127 - -	26. 4	40. 5	54. 3	17 40. 40	2 34. 611	5 15. 25	2. 310
	Mars, N. P. - - -	42. 3	58. 0	9. 0	22 55. 65	2 36. 921		
	B. Z., 396, 127 - -	12. 1	26. 0	40. 0	32 26. 03	2 27. 066	5 15. 52	3. 723
	Mars, S. P. - - -	27. 9	43. 1	55. 2	37 41. 55	2 30. 789		
	B. Z., 396, 127 - -	26. 2	39. 2	53. 5	40 39. 63	2 26. 890	+ 5 14. 97	— 2. 349
	Mars, N. P. - - -	41. 2	57. 2	8. 0	45 54. 60	2 29. 239		

Corr. Chron. s. —37. 94

		α h. m. s.	δ ° ′ ″
B. Z., 396, 127,		5 3 5. 39	+26 16 13. 68

Mars, S. P—B. Z., 396, 127,

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	4 25 57. 43	+5 15. 87	—0 54. 98
	Δ ρ	. 00	— . 02
	p	— . 12	+ 2. 74
	Semi-diam.,	+ . 56	+ 8. 43

Mars, N. P.—B. Z., 396, 127.

	h. m. s.	m. s.	′ ″
Sid. T.	4 33 47. 19	+5 15. 11	—0 35. 80
	Δ ρ	. 00	— . 01
	p	— . 10	+ 2. 69
	Semi-diam.,	+ . 56	+ 8. 43

Night very unfavorable.—A. 6.

In. Bar. 30. 320 Ther. At. 69° Int. 33 Ex. 19

MARS.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ η	Δ mic.	RESULTS.
850.		s.	s.	s.	h. m s.	w.	revs.	m. s.	revs.	
1. 19	Mars, N. P. - - -	9.3		37.0	2 49 23.15	1	40.676			Floating clouds; star of comparison scarce visible.—A. 7.
	B. Z., 405, 6 - - -	10.0	24.3	37.5	53 23.93	2	30.638	— 4 0.80	+ 20.113	Bar. 30.26 In. Ther. At. 77°, Ex. 30
	Mars, S. P. - - -	33.0	48.2	0.0	55 46.50	1	42.018			
	B. Z., 405, 6 - - -	33.0	47.0		59 47.00	2	30.428	— 4 0.50	+ 18.561	
1. 22	Mars, S. P. - - -	29.2	44.8	56.7	3 0 42.95	2	37.022			
	B. Z., 405, 6 - - -		9.5	23.4	5 9.45	2	46.031	— 4 26.50	+ 9,009	
	Mars, N. P. - - -	56.8	12.3	24.1	7 10.45	2	35.890			
	B. Z., 405, 6 - - -	24.2	37.5		11 37.45	2	45.978	4 27.00	10.088	
	Mars, S. P. - - -	53.0	8.2	20.6	13 6.80	2	36.870			
	B. Z., 405, 6 - - -	19.0	33.0	47.0	17 33.00	2	46.001	4 26.20	9.131	
	Mars, N. P. - - -	13.2	28.5	41.1	19 27.15	2	36.020			
	B. Z., 405, 6 - - -		53.0	7.2	23 52.95	2	45.920	4 25.80	9.900	
	Mars, S. P. - - -	39.8	54.4	7.0	25 53.40	2	36.892			
	B. Z., 405, 6 - - -	6.0	19.7	33.2	30 19.63	2	45.921	4 26.23	9.029	
	Mars, N. P. - - -	58.0	13.3	25.5	32 11.75	2	35.960			
	B. Z., 405, 6 - - -	24.2	38.2	52.0	36 38.13	2	45.973	4 26.38	10.013	
	Mars, S. P. - - -	0.0	14.8	27.0	38 13.50	2	37.032			
	B. Z., 405, 6 - - -	26.1	40.2		42 40.10	2	46.060	4 26.60	9.030	
	Mars, S. P. - - -	57.7	12.9	25.1	44 11.40	2	37.002			
	B. Z., 405, 6 - - -	24.0	38.0		48 37.90	2	46.009	4 26.50	9.007	
	Mars, N. P. - - -	28.2	43.3	55.2	50 41.70	2	36.038			
	B. Z., 405, 6 - - -	54.2	8.2		55 8.10	2	46.039	4 26.40	10.001	
	Mars, S. P. - - -	52.0	7.0	19.0	57 5.50	2	37.199			
	B. Z., 405, 6 - - -	19.2	33.0		4 1 32.90	2	46.149	4 27.40	8.950	
	Mars, N. P. - - -	26.5	41.2	54.1	4 3 40.30	2	36.091			
	B. Z, 405, 6 - - -	53.0	6.0		8 5.90	2	46.120	4 25.60	10.029	
	Mars, S. P. - - -	36.1	51.3	3.5	16 49.80	2	36.908			
	B. Z, 405, 6 - - -	2.5	16.2		21 16.10	2	45.865	4 26.30	8.957	
	Mars, N. P. - - -	47.2	2.3	15.0	23 1.10	2	36.059			
	B. Z., 405, 6 - - -	14.1	28.1	41.3	27 27.83	2	45.867	4 26.73	9.808	
	Mars, S. P. - - -	47.1	1.5	15.0	30 1.05	2	36.771			
	B. Z., 405, 6 - - -	14.1	28.3	41.5	34 27.96	2	45.699	4 26.91	8.928	
	Mars, N. P. - - -	13.7	28.9	41.3	37 27.50	2	35.916			
	B. Z., 405, 6 - - -	40.0	54.1	7.5	42 53.86	2	46.221	4 26.36	10.305	
	Mars, S. P. - - -	27.1	42.3	54.2	44 40.65	2	36.900			
	B. Z., 405, 6 - - -	53.0	7.2	21.0	49 7.06	2	45.710	4 26.41	8.810	
	Mars, N. P. - - -	11.2	25.2	38.1	51 24.65	2	35.776			
	B. Z., 405, 6 - - -	37.2	51.0	5.0	55 51.06	2	45.616	4 26.41	9.840	
	Mars, N. P. - - -	31.0	46.2	59.0	5 35 45.00	2	42.701			
	B. Z., 405, 6 - - -	56.5	11.0	24.0	40 10.50	2	52.400	— 4 25.50	+ 9.699	

Results (Jan. 22):

Corr. Chron. — 21.22 s.

	α (h. m. s.)	δ (° ′ ″)
B. Z., 405, 6	5 10 30.06	+ 26 5 43.02

Mars, S. P.—B. Z., 405, 6,

	h. m. s.	Δ α (m. s.)	Δ δ (′ ″)
Sid. T.	4 12 50.03	—4 26.52	+ 2 17.17
Δ ρ		.00	.04
p		— .16	2.62
Semi-d.		+ .52	+ 7.79

Mars, N. P.—B. Z., 405, 6.

	h. m. s.	m. s.	′ ″
Sid. T.	4 18 6.09	— 4 26.29	+ 2 32.08
Δ ρ		.00	.04
p		— .14	+ 2.61
Semi-d.		+ .52	— 7.79

A. 8.

Bar. 30.10 In. Ther. At. 73°, Ex. 36

MARS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
1850. Jan. 22	Mars, N. P. - - -	30.4	45.3	56.5	5 43 43.46	2 42.780		
	B. Z., 405, 6 - - -	56.5	10.5	23.5	48 10.16	2 52.038	— 4 26.71	+ 9.258
	Mars, S P. - - -	1.8	17.2	28.9	51 15.35	2 43.971		
	B. Z., 405, 6 - - -	37.6	51.0	5.0	55 51.20	2 52.650	4 25.85	8.679
	Mars, S. P. - - -	25.0	40.3	53.0	6 3 39.00	2 43.892		
	B. Z., 405, 6 - - -	52.0	6.2	19.2	8 5.80	2 52.528	— 4 26.80	+ 8.636
Jan. 29	Mars, S. P. - - -	58.1	13.1	25.7	3 2 11.90	2 34.398	— 3 28.17	— 7.589
	B. Z., 405, 6 - - -	26.2	40.3	53.7	5 40.07	2 26.809		
	Mars, N. P. - - -	28.1	43.0	55.0	8 41.55	2 33.328	3 28.48	6.652
	B. Z., 405, 6 - - -	56.1	10.0	24.0	12 10.03	2 26.760		
	Mars, S. P. - - -	20.0	35.3	48.2	14 34.10	2 34.292	3 28.13	7.595
	B. Z., 405, 6 - - -	48.5	2.1	16.1	18 2.23	2 26.697		
	Mars, N. P. - - -	26.1	41.0	53.2	19 39.65	2 33.367	3 27.90	6.766
	B. Z., 405, 6 - - -	54.1		21.0	23 7.55	2 26.600		
	Mars, S. P. - - -	41.2	56.0	7.9	25 54.55	2 34.768	3 27.45	8.112
	B. Z., 405, 6 - - -		22.0		29 22.00	2 26.656		
	Mars, N. P. - - -	8.0	23.3	35.5	32 21.75	2 33.149	— 3 29.25	— 6.543
	B. Z., 405, 6 - - -	36.0	51.0		35 51.00	2 26.606		
	Mars, S. P. - - -	42.9	57.7	10.0	3 56 56.49	2 30.010		
	B. Z., 405, 6 - - -	10.9	24.8	38.4	4 0 24.74	2 22.501		
	Mars, N. P. - - -	17.9	33.8	46.2	3 32.12	2 28.870		
	B. Z., 405, 6 - - -	45.3	58.7	12.3	6 58.81	2 22.250		
	Mars, S. P. - - -	49.2	4.3	16.5	4 57 2.85	2 29.425		
	B. Z., 405, 6 - - -		29.7	43.5	5 0 29.70	2 21.729		

RESULTS.

Corr. Chron. — 19.86 s.

		α (h. m. s.)	δ (° ′ ″)
B. Z., 405, 6,		5 10 30.02	+26 5 43.20

Mars, S. P.—B. Z., 405, 6,

	h. m. s.	Δ α (m. s.)	Δ δ (′ ″)
Sid. T.	3 13 53.66	—3 27.92	—1 59.36
	Δ ρ	.00	.04
	p	— .30	+ 2.87
	Semi-diam.,	+ .48	+ 7.23

Mars, N. P.—B. Z., 405, 6,

	h. m. s.	m. s.	′ ″
Sid. T.	3 19 54.45	—3 28.54	—1 42.28
	Δ ρ	.00	— .03
	p	— .28	+ 2.75
	Semi-diam.,	+ .48	— 7.23

The times of the last three comparisons are by chronograph. A. 6.

Bar. 30.40 In. Ther. At. 73°

HEBE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
Feb. 16	Weisse XIII, 458	27.2	39.2		9 25 39.2	2	44.821		
	Hebe		54.0		26 54.0	2	44.819		
	Weisse XIII, 458	6.0	18.2	31.0	32 18.40	2	44.875	+ 1 16.71	+ 18.960
	Hebe		35.2	47.5	33 35.11	1	56.082		
	Weisse XIII, 458	6.2	19.0	31.0	38 18.73	2	44.987	1 17.03	19.166
	Hebe	23.8	35.5	48.0	39 35.76	1	55.990		
	Weisse XIII, 458	14.0	27.0		52 27.00	2	45.391	1 16.20	19.453
	Hebe		43.2	56.0	53 43.20	1	56.105		
	Weisse XIII, 458	32.5	45.0	57.3	10 1 44.70	2	45.422	+ 1 16.70	+ 19.231
	Hebe	49.0	1.2	14.0	3 1.40	1	56.358		
Feb. 26	Weisse XIII, 413	34.2	46.8	59.2	9 55 46.73	3	34.372	+ 1 46.82	+ 8.970
	Hebe			46 0	57 33.55	3	25.402		
	Weisse XIII, 472			56.5	58 44.05	2	28.093	— 1 10.50	— 27.221
	Weisse XIII, 413	1.3	13.5	26.1	10 6 13.63	3	34.410	+ 1 47.42	+ 9.218
	Hebe	48.7		13.4	8 1.05	3	25.192		
	Weisse XIII, 472		11.2	23.0	9 10.93	2	28.152	— 1 9.88	— 26.952
	Weisse XIII, 413	5.7	18.3	31.2	40 18.40	3	34.650	+ 1 47.70	+ 10.071
	Hebe		6.1		42 6.10	3	24.579		
	Weisse XIII, 472	4.2		28.3	43 16.25	2	28.340	— 1 10.15	— 26.151
	Weisse XIII, 413	23.2	35.4	48.0	51 35.53	3	34.549	+ 1 46.44	+ 10.209
	Hebe	9.5	22.1	34.3	53 21.97	3	24.340		
	Weisse XIII, 472	20.8		45.0	54 32.90	2	28.262	— 1 10.93	— 25.990
	Weisse XIII, 413	16.2	28.3	40.8	11 1 28.43	3	34.492	+ 1 46.57	+ 10.270
	Hebe	2.5	15.1	27.4	3 15.00	3	24.222		
	Weisse XIII, 472			38.5	4 26.05	2	28.113	— 1 11.05	— 26.021
March 4	Weisse XIII, 365	27.0	39.1	51.7	9 37 39.27	3	40.980	+ 1 49.00	+ 29.221
	Hebe		28.0	40.8	39 28.27	2	41.671		
	Weisse XIII, 365	29.2	41.8	54.1	42 41.70	3	40.936	1 48.80	29.328
	Hebe	18.1	30.4	43.0	44 30.50	2	41.520		
	Weisse XIII, 365	7.2	19.3	31.5	51 19.33	3	41.068	1 48.10	29.693
	Hebe	55.0	7.3	20.0	53 7.43	2	41.287		
	Weisse XIII, 365	43.2	56.3	8.7	54 56.07	3	40.862	1 48.00	29.423
	Hebe	31.3	43.8	57.1	56 44.07	2	41.351		
	Weisse XIII, 365	35.2	48.1	0.3	10 1 47.87	3	41.220	1 48.06	+ 29.632
	Weisse XIII, 370		11.3	24.0	2 11.32	1	46.062	1 24.61	— 25.607
	Hebe	23.3	36.0	48.5	3 35.93	2	41.502		
	Weisse XIII, 365	28.1	40.4	52.7	9 40.40	3	41.311	1 47.57	+ 30.002
	Weisse XIII, 370		3.0	15.2	10 2.95	1	46.081	1 25.02	— 25.207
	Hebe	15.0	28.2	40.7	11 27.97	2	41.221		
	Weisse XIII, 365	52.3	5.1	17.3	17 4.90	3	41.158	1 47.63	+ 30.125
	Weisse XIII, 370		28.2	40.7	17 28.15	1	46.029	1 24.38	— 25.083
	Hebe	40.2	52.4	5.0	18 52.53	2	40.945		
	Weisse XIII, 365	26.3	39.1	51.2	23 38.87	3	41.061	1 47.13	+ 30.132
	Weisse XIII, 370		1.8	14.2	24 1.72	1	45.848	1 24.28	— 25.160
	Hebe	13.3	26.0	38.7	25 26.00	2	40.841		
	Weisse XIII, 365	5.2		30.4	11 13 17.80	3	40.840	+ 1 46.50	+ 31.311
	Weisse XIII, 370		41.0	53.0	13 41.00	1	45.891	+ 1 23.30	— 23.717
	Hebe	51.6		17.0	15 4.30	2	39.441		

RESULTS.

Feb. 16

Corr. Chron. — 40.59 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XIII, 458,	13 27 11.93	+ 5 40 53.89

Hebe—Weisse, XIII, 458,

	h. m. s.	Δα (m. s.)	Δδ (′ ″)
Sid. T.	9 46 48.28	+ 1 16.66	+ 4 52.06
Δρ		— .01	.17
p		— .16	+ 2.26

Feb. 26

Corr. Chron. — 26.10 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XIII, 413,	13 24 46.62	+ 7 7 20.85
Weisse XIII, 472,	13 27 44.07	+ 7 16 39.45

Hebe—Weisse XIII, 413,

	h. m. s.	Δα (m. s.)	Δδ (′ ″)
Sid. T.	10 32 25.13	+ 1 46.99	+ 2 29.81
Δρ		.00	.07
p		— .15	+ 2.25

Hebe—Weisse XIII, 472.

	h. m. s.	m. s.	′ ″
Sid. T.	10 32 25.13	— 1 10.50	— 6 46.78
Δρ		.00	— .19
p		— .15	+ 2.25

March 4

Corr. Chron. — 16.50 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XIII, 365,	13 22 29.72	+ 7 57 13.00
Weisse XIII, 370,	13 22 52.62	8 11 23.51

Hebe—Weisse, XIII, 365,

	h. m. s.	Δα (m. s.)	Δδ (′ ″)
Sid. T.	10 23 20.02	+ 1 47.63	+ 7 44.55
Δρ		.00	.22
p		— .15	+ 2.27

Hebe—Weisse XIII, 370.

	h. m. s.	m. s.	′ ″
Sid. T.	10 43 25.14	+ 1 23.90	— 6 16.72
Δρ		.00	— .17
p		— .14	+ 2.24

(Continued.)

HEBE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
March 4	Weisse XIII, 365 -	44.1	57.3	9.5	11 19 56.97	3	41.081	+ 1 46.50	+ 31.744	
	Weisse XIII, 370 -		20.3	32.7	20 20.07	1	45.890	1 23.40	— 23.526	
	Hebe - - - - -		43.7	56.1	21 43.47	2	39.249			
	Weisse XIII, 365 -	42.3	54.7	7.1	27 54.70	3	41.109	1 46.60	+ 31.880	
	Weisse XIII, 370 -		19.1	31.3	28 19.00	1	46.032	+ 1 22.30	— 23.276	
	Hebe - - - - -	28.8	41.3	53.8	29 41.30	2	39.141			
March 8	Hebe - - - - -		38.9	51.7	9 32 39.07	3	27.226			
	Weisse XIII, 392 -	1.7	14.1	26.7	34 14.17	2	29.762	— 1 35.10	— 27.376	s. Corr. Chron. — 10.05
	Hebe - - - - -		15.2	28.0	41 15.43	3	27.210			α δ
	Weisse XIII, 392 -	38.0	50.3	2.7	42 50.33	2	29.897	1 34.90	27.225	h. m. s. ° ′ ″ Weisse XIII, 392, 13 23 55.03 + 8 49 42.14
	Hebe - - - - -	32.3		57.5	47 44.90	3	27.287			Hebe — Weisse XIII, 392, $\Delta\alpha$ $\Delta\delta$
	Weisse XIII, 392 -	7.4	20.0	32.5	49 19.97	2	29.995	1 35.07	27.304	h. m. s. m. s. ′ ″ Sid. T. 10 31 30.61 — 1 36.22 — 6 39.12
	Hebe - - - - -	8.2	21.0	33.5	55 20.90	3	27.032			$\Delta\rho$ .00 .18
	Weisse XIII, 392 -	44.0	56.3	9.0	56 56.43	2	30.038	1 35.53	26.906	p — .15 + 2.26
	Hebe - - - - -	46.1	58.3	11.1	10 57 58.50	3	22.968			
	Weisse XIII, 392 -	23.1	35.3	47.7	59 35.37	2	27.510	1 36.87	25.370	
	Hebe - - - - -	15.1	28.0		11 3 28.03	3	22.679			
	Weisse XIII, 392 -			17.0	5 4.57	2	27.553	1 36.54	25.038	
	Hebe - - - - -	41.5		6.0	9 53.75	3	22.635			
	Weisse XIII, 392 -	8.5	21.0	33.6	11 21.03	2	27.596	1 37.28	24.951	
	Hebe - - - - -	24.3	36.5	49.0	15 36.60	3	22.536			
	Weisse XIII, 392 -	1.4	14.1	26.2	17 13.90	2	27.551	1 37.30	24.907	
	Hebe - - - - -	56.3	8.6	41.3	21 8.73	3	22.323			
	Weisse XIII, 392 -	33.5	46.1	58.7	22 46.10	2	27.589	— 1 37.37	— 24.646	
March 10	Weisse XIII, 331 -	57.1	9.0	21.7	9 5 9.27	2	29.945	+ 0 33.23	— 24.830	s.
	Hebe - - - - -	30.2	42.3	55.0	5 42.50	3	24.863			Corr. Chron. — 6.83
	Weisse XIII, 331 -	54.6	7.1	19.3	8 7.00	2	30.068	0 33.33	24.784	α δ h. m. s. ° ′ ″
	Hebe - - - - -	27.9	40.2	52.9	8 40.33	3	24.940			Weisse XIII, 331, 13 20 40.52 + 9 8 6.31
	Weisse XIII, 331 -	11.3	24.0	37.0	12 24.10	2	30.095	0 33.40	24.530	Hebe — Weisse XIII, 331, $\Delta\alpha$ $\Delta\delta$
	Hebe - - - - -	45.0	57.5	10.0	12 57.50	3	24.713			h. m. s. m. s. ′ ″
	Weisse XIII, 331 -	58.2	10.5	23.1	16 10.60	2	30.242	0 32.83	24.490	Sid. T. 9 25 2.83 + 0 32.84 — 6 10.60
	Hebe - - - - -	31.0	43,2	56.1	16 43.43	3	24.820			$\Delta\rho$ .01 .23 p — .19 + 2.37
	Weisse XIII, 331 -	58.1	10.3	22.8	20 10.40	2	30.311	0 33.17	24.329	
	Hebe - - - - -	31.0	43.6	56.1	20 43.57	3	24.728			
	Weisse XIII, 331 -	14.1	26.5	39.1	23 26.57	2	30.410	0 32.66	24.285	
	Hebe - - - - -	47.0	59.2	11.5	23 59.23	3	24.783			
	Weisse XIII, 331 -	23.2	35.6	48.1	26 35.63	2	30.389	0 32.75	24.263	
	Hebe - - - - -		8.2	21.0	27 8.38	3	24.740			
	Weisse XIII, 331 -	21.2	34.1	46.3	29 33.86	2	30.338	0 32.84	24.264	
	Hebe - - - - -	54.1	7.0	19.0	30 6.70	2	24.690			
	Weisse XIII, 331 -	10.6	23.1	35.3	34 23.00	2	30 426	0 32.70	24.115	
	Hebe - - - - -		55.8	8.0	34 55.70	3	24.629			
	Weisse XIII, 331 -	8.0	20.3	32.6	36 20.30	2	30.358	0 32.57	23.929	
	Hebe - - - - -	40.3	53.0	5.3	36 52.87	3	24.375			
	Weisse XIII, 331 -	35.2	47.4	0.1	39 47.57	2	30.500	+ 0 32.33	— 23.807	
	Hebe - - - - -	7.5	19.7	32.5	40 19.90	3	24.395			

(Continued.)

HEBE.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
rch 10	Weisse XIII, 331 -	1. 3	13. 5	25. 8	9 43 13. 53	2	30. 479	+ 0 32. 25	— 23. 731
	Hebe - - - -		45. 8	58. 0	43 45. 78	3	24. 298		
rch 11	Hebe - - - -	26. 2	38. 5	50. 7	8 59 38. 47	2	31. 280		
	Weisse XIII, 331 -	28. 5	40. 0	52. 2	59 40. 23	2	44. 456	— 0 1. 76	+ 13. 176
	Hebe - - - -	39. 7		4. 3	9 2 52. 00	2	31. 312		
	Weisse XIII, 331 -	41. 2		6. 1	2 53. 65	2	44. 180	0 1. 65	12. 868
	Hebe - - - -	43. 0	55. 0	7. 2	5 55. 07	2	31. 356		
	Weisse XIII, 331 -	44. 4	57. 0	9. 2	5 56. 87	2	44. 337	0 1. 80	12. 981
	Hebe - - - -	19. 1	31. 5	44. 0	9 31. 53	2	31. 287		
	Weisse XIII, 331 -	20. 3	33. 0	45. 7	9 33. 00	2	44. 461	0 1. 47	13. 174
	Hebe - - - -	38. 2	50. 2	2. 7	11 50. 37	2	31. 325		
	Weisse XIII, 331 -	39. 7	52. 1	5. 0	11 52. 27	2	44. 422	0 1. 90	13. 097
	Hebe - - - -	31. 5	43. 3		17 43. 37	2	31. 213		
	Weisse XIII, 331 -	33. 0	45. 0	57. 5	17 45. 17	2	44. 559	0 1. 80	13. 346
	Hebe - - - -	21. 2	34. 0	46. 3	22 33. 83	2	31. 198		
	Weisse XIII, 331 -	23. 5	36. 0	48. 3	22 35. 93	2	44. 505	0 2. 10	13. 307
	Hebe - - - -	12. 2	25. 0	37. 5	26 24. 90	2	31. 146		
	Weisse XIII, 331 -	14. 5	27. 2	39. 6	26 27. 10	2	44. 512	0 2. 20	13. 366
	Hebe - - - -	23. 1	35. 6	48. 1	29 35. 60	2	31. 011		
	Weisse XIII, 331 -	25. 5	38. 0	50. 3	29 37. 93	2	44. 635	0 2. 33	13. 624
	Hebe - - - -	24. 2		49. 3	32 36. 75	2	31. 061		
	Weisse XIII, 331 -	26. 5	39. 1	51. 4	32 39. 00	2	44. 742	0 2. 25	13. 681
	Hebe - - - -	10. 2	23. 6	37. 2	9 40 23. 67	2	30. 915		
	Weisse XIII, 331 -	13. 7	26. 9	39. 6	40 26. 73	2	44. 796	0 3. 06	13. 881
	Hebe - - - -	11. 8	24. 6	36. 7	42 24. 37	2	30. 912		
	Weisse XIII, 331 -	14. 6	27. 0	39. 2	42 26. 93	2	44. 802	0 2. 56	13. 890
	Hebe - - - -	11. 9	23. 8	36. 6	44 24. 10	2	30. 900		
	Weisse XIII, 331 -	14. 3	26. 7	39. 2	44 26. 73	2	44. 823	0 2. 63	13. 923
	Hebe - - - -	11. 7	24. 6	37. 1	46 24. 47	2	30 871		
	Weisse XIII, 331 -	14. 6	27. 1	39. 0	46 26. 90	2	44. 935	0 2. 43	14. 064
	Hebe - - - -	17. 7	30. 3	42. 3	48 30. 10	2	30. 728		
	Weisse XIII, 331 -	20. 6	32. 8	45. 4	48 32. 93	2	44. 927	0 2. 83	14. 199
	Hebe - - - -	23. 8	35. 9	48. 5	50 36. 07	2	30. 850		
	Weisse XIII, 331 -	26. 3	38. 8	51. 2	50 38. 77	2	44. 801	— 0 2. 70	+ 13. 951
rch 19	Weisse XIII, 208 -	25. 2	38. 0	50. 5	11 10 37. 90	1	25. 382	+ 2 37. 50	— 70. 840
	Hebe - - - -	3. 0	15. 2	28. 0	13 15. 40	3	36. 142		
	Weisse XIII, 208 -	22. 1	35. 0	47. 5	19 34. 67	1	34. 230	2 36. 25	70. 855
	Hebe - - - -		11. 0	24. 2	22 11. 12	3	45. 005		
	Weisse XIII, 208 -	49. 3	2. 0	15. 0	25 2. 10	1	34. 251	2 36. 67	70. 624
	Hebe - - - -	26. 1	39. 0	51. 2	27 38. 77	3	44. 795		
	Weisse XIII, 208 -	14. 8	28. 1	40. 0	30 27. 63	1	34. 288	2 35. 85	70. 434
	Hebe - - - -		3. 7	16. 1	33 3. 48	3	44. 642		
	Weisse XIII, 208 -	14. 1	26. 7	39. 3	43 26. 70	1	34. 432	2 35. 63	69. 947
	Hebe - - - -	49. 5	2. 5	15. 0	46 2. 33	3	44. 299		
	Weisse XIII, 208 -	20. 3	33. 7	46. 1	48 33. 37	1	34. 440	+ 2 35. 50	— 69. 800
	Hebe - - - -	56. 3	9. 0	21. 3	51 8. 87	3	44. 160		

RESULTS.

Corr. Chron. — 5.20 s.

	α	δ
	h. m. s.	° ′ ″
Weisse XIII, 331,	13 20 40. 53	+9 8 6. 30

Hebe—Weisse XIII, 331,		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	9 18 46. 99	— 0 1. 93	+ 3 23. 83
	Δ ρ	. 00	+ . 13
	p —	. 20	+ 2. 38

Corr. Chron. — 1 2. 83 m. s.

Hebe—Weisse XIII, 331,		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	9 44 27. 63	— 0 2. 70	+ 3 34. 94
	Δ ρ	. 00	+ . 12
	p —	. 18	+ 2. 37

(Continued.)

HEBE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.
		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
1850. March 19	Weisse XIII, 208 .	1.3	13.7	26.1	11 55 13.70	1	34.121	+ 2 35.87	− 69.846
	Hebe	37.2	49.5	2.0	57 49.57	3	43.887		
	Weisse XIII, 208 .	56.1	9.3	21.5	12 2 8.97	1	34.042	2 35.06	69.878
	Hebe	31.3	44.1	56.7	4 44.03	3	43.840		
	Weisse XIII, 208 .	9.3	21.7	34.1	7 21.70	1	34.029	2 35.20	69.710
	Hebe	44.4	57.0	9.3	9 56.90	3	43.659		
	Weisse XIII, 208 .	54.4	7.1	19.6	14 7.03	1	34.129	2 34.85	69.211
	Hebe		42.1	54.3	16 41.88	3	43.260		
	Weisse XIII, 208 .	9.7	22.5	35.0	20 22.40	1	34.021	2 35.20	69.250
	Hebe	45.2	57.5	10.1	22 57.60	3	43.191		
	Weisse XIII, 208 .	43.1	55.6	8.1	25 55.60	1	33.960	2 34.40	69.050
	Hebe	17.5	30.0	42.5	28 30.00	3	42.930		
	Weisse XIII, 208 .	56.1	8.0	20.3	32 8.13	1	33.880	2 33.80	69.151
	Hebe	29.5	42.0	54.3	34 41.93	3	42.951		
	Weisse XIII, 208 .	55.6	8.0	20.0	37 7.87	1	33.981	+ 2 34.63	− 68.876
	Hebe	30.0	42.5	55.0	39 42.50	3	42.777		
March 28	Weisse XIII, 104 .	26.2	38.5	50.8	12 9 38.50	1	42.010	+ 1 5.53	− 64.805
	Hebe	31.3	44.1	56.7	10 44.03	3	46.735		
	Weisse XIII, 104 .	4.8	17.2	30.0	13 17.33	1	41.972	1 5.44	64.781
	Hebe	10.2	23.1	35.0	14 22.77	3	46.673		
	Weisse XIII, 104 .	59.3	11.5	24.3	16 11.70	1	42.039	1 5.30	64.539
	Hebe		17.1	29.3	17 17.00	3	46.498		
	Weisse XIII, 104 .	57.1	9.3	22.0	19 9.47	1	42.086	1 5.55	64.519
	Hebe		15.4	27.0	20 15.02	3	46.525		
	Weisse XIII, 104 .	55.2	7.5	20.2	22 7.63	1	42.019	1 5.04	64.432
	Hebe	0.0	13.0	25.0	23 12.67	3	46.371		
	Weisse XIII, 104 .	28.3	41.0	53.2	24 40.83	1	41.901	1 4.90	64.518
	Hebe	33.5	45.8	57.9	25 45.73	3	46.339		
	Weisse XIII, 104 .	37.1		2.0	27 49.55	1	42.089	1 4.82	64.272
	Hebe	41.9	54.2	7.0	28 54.37	3	46.281		
	Weisse XIII, 104 .	30.2	42.5	55.1	31 42.60	1	41.959	1 4.87	64.291
	Hebe	34.9	47.5	0.0	32 47.47	3	46.170		
	Weisse XIII, 104 .	18.7	31.0	43.7	34 31.13	1	41.958	1 4.24	64.154
	Hebe	23.1	35.2	47.8	35 35.37	3	46.032		
	Weisse XIII, 104 .	14.1	27.0	39.7	37 26.93	1	41.949	1 4.57	64.190
	Hebe	19.1	31.4	44.0	38 31.50	3	46.059		
	Weisse XIII, 104 .	47.3	59.6	12.5	39 59.80	1	42.015	1 3.70	64.243
	Hebe	51.0	3.5	16.0	41 3.50	3	46.178		
	Weisse XIII, 104 .	21.3	33.9	46.2	43 33.80	1	41.975	1 4.15	64.015
	Hebe		37.9	50.5	44 37.95	3	45.910		
	Weisse XIII, 104 .	56.1	8.5	21.0	46 8.53	1	42.078	1 4.24	63.833
	Hebe	0.3	13.0	25.0	47 12.77	3	45.831		
	Weisse XIII, 104 .	30.7	43.5	56.0	48 43.40	1	41.935	1 4.13	63.884
	Hebe	35.1	47.5	0.0	49 47.53	3	45.739		
	Weisse XIII, 104 .	2.7	15.2	27.9	51 15.27	1	41.947	+ 1 4.20	− 63.743
	Hebe	7.0	19.3	32.1	52 19.47	3	45.610		

RESULTS.

March 19:

Corr. Chron. + 9.56 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XIII, 208,	13 12 37.91	+10 47 18.68

Hebe—Weisse XIII, 208,

	h. m. s.	Δα (m. s.)	Δδ (′ ″)
Sid. T.	11 59 2.73	+ 2 35.46	−17 54.60
$\Delta\rho$		.00	− .38
p		− .02	+ 2.06

March 28:

Corr. Chron. +26.58 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XIII, 104,	13 7 3.47	+12 7 40.15

Hebe—Weisse XIII, 104,

	h. m. s.	Δα (m. s.)	Δδ (′ ″)
Sid. T.	12 40 13.27	+1 4.46	−16 26.00
$\Delta\rho$		.00	− .34
p		− .03	+ 1.99

(Continued.)

HEBE.

ATE.	OBJECTS.	Observed times of transit.				Mic.		Planet—Star.	
		A.	B.	C.	Mean.			Δ α	Δ mic.
.850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
rch 28	Weisse XIII, 104 .	32. 7	45. 1	58. 0	12 53 45. 27	1	41. 933	+ 1 4. 33	— 63. 798
	Hebe	37. 3	49. 5	2. 0	54 49. 60	3	45. 651		
	Weisse XIII, 104 .	4. 1	16. 8	29. 5	59 16. 80	1	41. 859	1 3. 97	63. 596
	Hebe	8. 0	21. 0	33. 0	12 0 20. 67	3	45. 375		
	Weisse XIII, 104 .	52. 6	5. 0	17. 6	13 2 5. 07	1	41. 857	1 3. 43	64. 465
	Hebe	56. 0	8. 5	21. 0	3 8. 50	3	45. 242		
	Weisse XIII, 104 .	39. 5	52. 3	5. 0	4 52. 27	1	41. 840	1 3. 56	63. 521
	Hebe	43. 2	56. 0	8. 3	5 55. 83	3	45. 281		
	Weisse XIII, 104 .	36. 1	48. 8	1. 3	7 48. 73	1	41. 929	+ 1 3. 30	— 63. 362
	Hebe	39. 4	52. 1	4. 6	8 52. 03	3	45. 211		
rch 31	Hebe	8. 0	21. 0	33. 5	10 42 20. 83	2	41. 377		
	Weisse XIII, 104 .	30. 5	42. 8	56. 2	43 43. 17	3	42. 494	— 1 22. 34	+ 31. 029
	Hebe	24. 5	37. 0	49. 5	44 37. 00	2	41. 210		
	Weisse XIII, 104 .	46. 7	59. 2	11. 5	45 59. 13	3	42. 481	1 22. 13	31. 183
	Hebe	40. 7	53. 0	5. 0	47 52. 90	2	41. 170		
	Weisse XIII, 104 .		15. 0	27. 7	49 15. 25	3	42. 448	1 22. 35	31. 190
	Hebe	9. 1	21. 5	34. 1	51 21. 57	2	41. 159		
	Weisse XIII, 104 .	31. 5	44. 0	57. 0	52 44. 17	3	42. 578	1 22. 60	31. 331
	Hebe	0. 8	13. 0	25. 7	54 13. 17	2	40. 978		
	Weisse XIII, 104 .	23. 1	36. 1	48. 5	55 35. 90	3	42. 581	1 22. 73	31. 515
	Hebe	15. 2	27. 7	40. 0	57 27. 63	2	40. 863		
	Weisse XIII, 104 .	38. 5	50. 8	3. 3	58 50. 87	3	42. 481	1 23. 24	31. 530
	Hebe	16. 0	28. 5	41. 2	11 0 28. 57	2	40. 795		
	Weisse XIII, 104 .	39. 2	51. 0	3. 6	1 51. 27	3	42. 649	1 22. 70	31. 766
	Hebe	6. 7	19. 2	31. 5	4 19. 13	2	40. 718		
	Weisse XIII, 104 .	29. 7	42. 0	54. 6	5 42. 10	3	42. 600	1 22. 97	31. 794
	Hebe	19. 2	31. 5	44. 2	8 31. 63	2	40. 710		
	Weisse XIII, 104 .	42. 7	55. 0	7. 5	9 55. 07	3	42. 529	1 23. 44	31. 731
	Hebe	1. 5	13. 7	26. 5	11 13. 90	2	40. 709		
	Weisse XIII, 104 .	24. 7	37. 0	49. 7	12 37. 13	3	42. 660	— 1 23. 23	+31. 863
	Weisse XIII, 69 .	48. 5	1. 0	13. 5	20 1. 00	1	49. 707	+ 0 33. 63	— 21. 018
	Hebe		34. 7	47. 0	20 34. 63	2	40. 558		
	Weisse XIII, 104 .	46. 0	58. 5	11. 0	21 58. 50	3	42. 600	— 1 23. 87	32. 054
	Weisse XIII, 69 .	18. 3	30. 7	43. 4	12 15 30. 80	1	45. 010	+ 0 30. 97	19. 754
	Hebe	49. 0	2. 0	14. 3	16 1. 77	2	34. 597		
	Weisse XIII, 104 .	16. 1	28. 4	41. 0	17 28. 50	3	37. 617	— 1 26. 73	32. 932
	Weisse XIII, 69 .	22. 2	34. 7	47. 9	21 34. 93	1	44. 807	+ 0 30. 65	19. 569
	Hebe		6. 2	18. 7	22 5. 58	2	34. 209		
	Weisse XIII, 104 .	19. 5	32. 0	44. 7	23 32. 07	3	37. 573	— 1 26. 49	33. 276
	Weisse XIII, 69 .	45. 1	57. 3	9. 8	28 57. 40	1	44. 735	+ 0 31. 13	19. 353
	Hebe	16. 0	28. 6	41. 0	29 28. 53	2	33. 921		
	Weisse XIII, 104 .	42. 0	54. 3	7. 2	30 54. 50	3	37. 530	— 1 25. 97	33. 521
	Weisse XIII, 69 .	38. 2	50. 3	3. 0	34 50. 50	1	44. 789	+ 0 31. 10	19. 289
	Hebe		21. 5	34. 0	35 21. 60	2	33. 911		
	Weisse XIII, 104 .	35. 3	48. 1	0. 5	36 47. 97	3	37. 460	— 1 26. 37	33. 461
	Weisse XIII, 69 .	45. 0	57. 8	10. 2	41 57. 67	1	44. 895	+ 0 30. 56	18. 997
	Hebe	15. 5	28. 2	41. 2	42 28. 23	2	33. 725		
	Weisse XIII, 104 .	43. 3	55. 7	8. 0	43 55. 67	3	37. 412	— 1 27. 44	— 33. 599

RESULTS.

		s.
Corr. Chron.		+ 29. 12
		. 16

	α	δ
	h. m. s.	° ′ ″
Weisse XIII, 104,	13 7 3. 49	+12 7 40. 34
Weisse XIII, 69,	13 5 6. 64	12 21 13. 31

Hebe — Weisse XIII, 104,

		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	11 32 1. 76	—1 24. 22	+8 15. 01
	Δ ρ	. 00	. 18
	p	— . 09	+ 2. 04

Hebe — Weisse XIII, 69.

	h. m. s.	s.	′ ″
Sid. T.	12 22 27. 53	+0 31. 21	—5 00. 55
	Δ ρ	. 00	— . 10
	p	— . 04	+ 1. 93

(Continued.)

HEBE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
1850. March 31	Weisse XIII, 69 .	5. 2	18. 1	30. 2	12 47 17. 83	1	44. 850	+ 0 30. 40	— 18. 907
	Hebe	35. 5	48. 2	1. 0	47 48. 23	2	33. 590		
	Weisse XIII, 104 .	2. 9	15. 3	27. 9	49 15. 37	3	37. 426	— 1 27 14	— 33. 748
April 2	Hebe	36. 3	49. 2	0. 8	10 23 49. 10	2	36. 238		
	Weisse XIII, 69 .		55. 2	8. 0	24 55. 20	3	46. 812	— 1 6. 10	+ 40. 486
	Hebe	12. 0		37. 5	27 24. 75	2	36. 262		
	Weisse XIII, 69 .		31. 5	44. 0	28 31. 50	3	46. 772	1 6. 75	40. 422
	Hebe	36. 2	49. 1	1. 0	32 48. 76	2	36. 183		
	Weisse XIII, 69 .	42. 3	55. 1	7. 5	33 54. 97	3	46. 775	1 6. 21	40. 504
	Hebe	15. 0		40. 2	39 27. 60	2	36. 232		
	Weisse XIII, 59 .	22. 3	34. 2	47. 2	40 34. 57	3	46. 842	1 6. 97	40. 522
	Hebe	34. 1	46. 2	59. 1	45 46. 47	2	35. 905		
	Weisse XIII, 69 .	40. 7	53. 0	5. 7	46 53. 13	3	46. 842	1 6. 66	40. 849
	Hebe	0. 0	12. 7	25. 8	11 15 12. 83	2	35. 762		
	Weisse XIII, 69 .	8. 7		33. 3	16 21. 00	3	47. 209	1 8. 17	41. 359
	Hebe	0. 2	12. 3	25. 5	21 12. 67	2	35. 487		
	Weisse XIII, 69 .	8. 2	21. 0	33. 0	22 20. 73	3	47. 280	1 8. 06	41. 705
	Hebe	58. 1	10. 3	23. 0	28 10. 47	2	31. 742		
	Weisse XIII, 69 .	6. 0	19. 2	31. 3	29 18. 83	3	43. 761	1 8. 36	41. 931
	Hebe	30. 8		56. 0	32 43. 40	2	31. 735		
	Weisse XIII, 69 .	39. 5	52. 0	5. 7	33 52. 20	3	43. 770	1 8. 80	41. 947
	Hebe	51. 5	4. 3	17. 0	38 4. 27	2	31. 432		
	Weisse XIII, 69 .	1. 0	13. 5	25. 8	39 13. 43	3	43. 613	1 9. 16	42. 093
	Hebe	50. 1	2. 5	14. 8	51 2. 47	2	31. 315		
	Weisse XIII, 69 .	0. 2	12. 3	25. 0	52 12. 50	3	43. 615	1 10. 03	42. 212
	Hebe	50. 2	2. 5	15. 0	54 2. 57	2	31. 395		
	Weisse XIII, 69 .	0. 8	13. 5	25. 7	55 13. 33	3	43. 721	1 10. 76	42. 238
	Hebe	45. 1	57. 5	10. 2	57 57. 60	2	31. 309		
	Weisse XIII, 69 .		8. 5	21. 0	59 8. 50	3	43. 700	1 10. 90	42. 303
	Hebe	41. 5	54. 0	6. 5	12 3 54. 00	2	31. 180		
	Weisse XIII, 69 .	51. 7	4. 0	16. 5	5 4. 07	3	43. 620	1 10. 07	42. 352
	Hebe	19. 5	32. 1	44. 4	7 32. 00	2	31. 110		
	Weisse XIII, 69 .	30. 2	43. 0	55. 5	8 42. 90	3	43. 630	1 10. 90	42. 432
	Hebe	36. 0	48. 5	1. 0	14 48. 50	2	30. 778		
	Weisse XIII, 69 .	47. 5	0. 1	12. 5	16 0. 03	3	43. 600	1 11. 53	42. 734
	Hebe	57. 2	9. 3	22. 0	21 9. 50	2	30. 760		
	Weisse XIII, 69 .	7. 5	20. 5	32. 8	22 20. 26	3	43. 552	1 10. 76	42. 704
	Hebe	10. 2	23. 5	35. 7	26 23. 13	2	30. 550		
	Weisse XII, 69 .	21. 5	34. 2	46. 5	27 34. 07	3	43. 601	— 1 10. 94	+ 42. 963
April 4	Weisse XII, 1047 .	43. 0			11 39 55. 43	1	38. 683		
	Weisse XII, 1054 .	56. 0	8. 5	20. 9	40 8. 47	2	38. 209	+ 1 24. 23	— 18. 818
	Hebe	20. 3	32. 7	45. 1	41 32. 70	3	27. 115		
	Weisse XII, 1054 .	0. 5	13. 1	26. 0	43 13. 20	2	38. 181	+ 1 24. 37	— 18. 768
	Hebe	25. 2	37. 5	50. 0	44 37. 57	3	27. 037		

RESULTS.

Corr. Chron.			s. + 32. 56	
	α		δ	
	h. m. s.		° ′ ″	
Weisse XIII, 69	13 5 6. 66		+ 12 21 13. 45	
Hebe — Weisse XIII, 69,		Δ α		Δ δ
	h. m. s.	m. s.		′ ″
Sid. T.	11 30 37. 59	— 1 9. 45		+ 10 41. 89
		Δ ρ . 00		. 23
		p — . 09		+ 2. 01

(Continued.)

HEBE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
April 4	Weisse XII, 1054	30.2	42.8	55.0	11 47 42.67	2	38.349	+ 1 24.13	− 18.635	
	Hebe	54.2	7.0	19.2	48 6.80	3	27.072			
	Weisse XII, 1054	38.2	51.0	3.0	49 50.73	2	38.072	1 24.44	18.678	Corr. Chron. s. +34.61
	Hebe	2.5	15.5	27.5	51 15.17	3	26.838			
	Weisse XII, 1054	41.6	54.1	6.5	51 54.07	2	38.108	1 23.96	18.564	α h. m. s. δ ° ′ ″
	Hebe	5.8	18.1	30.2	53 18.03	3	26.760			Weisse XII, 1054 13 0 50.05 + 12 52 7.90
	Weisse XII, 1054	24.9	38.1	50.0	57 37.67	2	38.090	1 23.93	18.362	Hebe—Weisse XII, 1054. Δα Δδ
	Hebe	49.2	1.5	14.1	59 1.60	3	26.540			h. m. s. m. s. ′ ″
	Weisse XII, 1054	3.5	16.1	28.5	12 1 16.03	2	38.058	1 23.70	18.304	Sid. T. 12 46 45.44 + 1 22.20 − 4 29.06
	Hebe	27.1	40.0	52.1	2 39.73	3	26.450			Δρ .00 − .09 p − .01 + 1.92
	Weisse XII, 1054	34.3	47.5	59.8	3 47.20	2	38.098	1 23.37	18.316	
	Hebe	58.0	10.6	23.1	5 10.57	3	26.502			
	Weisse XII, 1054			36.0	13 28 23.47	2	36.152	1 20.00	16.696	
	Hebe			56.0	29 43.47	3	22.936			
	Weisse XII, 1054	39.5	51.5	3.0	33 51.20	2	36.181	1 21.10	16.523	
	Hebe		12.0	24.7	35 12.30	3	22.792			
	Weisse XII, 1054	37.2	49.7	1.2	39 49.37	2	36.411	1 20.95	16.418	
	Hebe		10.3	22.5	41 10.32	3	22.917			
	Weisse XII, 1054	31.1	43.3	56.0	45 43.47	2	36.530	1 19.56	16.292	
	Hebe	50.4	3.0	15.7	47 3.03	3	22.910			
	Weisse XII, 1054	41.2		6.8	50 54.00	2	36.410	1 19.67	16.192	
	Hebe			25.2	52 13.67	3	22.690			
	Weisse XII, 1054	5.2	17.5		56 17.50	2	36.567	1 20.10	16.014	
	Hebe	25.2		50.0	57 37.60	3	22.669			
	Weisse XII, 1054	28.1	40.0	53.0	14 2 40.37	2	36.803	+ 1 19.56	− 16.011	
	Hebe		0.0	12.0	3 59.87	3	22.902			
April 6	Hebe	37.0	49.5		10 35 49.77	2	27.960			
	Weisse XII, 1047	41.0	53.5	6.8	35 53.77	2	35.521	− 0 4.00	+ 7.561	
	Hebe	2.2		26.2	46 14.20	2	28.072			
	Weisse XII, 1047	6.5		30.5	46 18.50	2	35.324	0 4.30	7.252	Corr. Chron. s. + 36.46
	Hebe	30.2		56.5	49 43.35	2	28.062			
	Weisse XII, 1047	35.2	48.0	0.3	49 47.83	2	35.689	0 4.48	7.627	α h. m. s. δ ° ′ ″
	Hebe	13.5		38.2	56 25.85	2	27.841			
	Weisse XII, 1047	18.1	30.5	43.1	56 30.57	2	35.332	0 4.72	7.491	Weisse XII, 1047, 13 0 37.64 +12 59 44.63
	Hebe	37.5	49.7	2.3	11 4 49.83	2	27.549			Hebe—Weisse XII, 1047, Δα Δδ h. m. s. m. s. ′ ″
	Weisse XII, 1047	41.2	54.1	6.5	4 53.93	2	35.597	0 4.10	8.048	Sid. T. 11 26 54.23 − 0 5.28 + 2 6.38
	Hebe	2.0	14.7	27.2	24 14.63	2	27.412			Δρ .00 .04
	Weisse XII, 1047	7.1	19.2	32.0	24 19.43	2	35.568	0 4.80	8.156	p − .09 + 1.97
	Hebe	2.0	14.5	27.2	36 14.57	2	27.129			
	Weisse XII, 1047	7.2	19.5	33.0	36 19.90	2	35.645	0 5.33	8.516	
	Hebe	17.2	30.1	43.3	39 30.20	2	27.322			
	Weisse XII, 1047	23.1	36.0	48.0	39 35.70	2	35.552	0 5.50	8.230	
	Hebe	59.5	12.1	24.5	44 12.03	2	27.112			
	Weisse XII, 1047	4.7	17.2	30.1	44 17.33	2	35.778	0 5.30	8.666	
	Hebe	30.7	43.5	56.1	45 43.43	2	27.140			
	Weisse XII, 1047	36.1	49.7	2.4	45 49.40	2	35.750	− 0 5.97	+ 8.610	

HEBE.

DATE.	OBJECTS.	Observed times of transit A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
April 6	Hebe - - - - -	56.1	8.9		11 48 8.93	2	27.048			
	Weisse XII, 1047 -	2.5	14.9	28.0	49 15.13	2	35.678	− 0 6.20	+ 8.630	
	Hebe - - - - -	3.5	16.2	28.7	53 16.13	2	27.010			
	Weisse XII, 1047 -	9.0	22.5	35.0	53 22.17	2	35.640	0 6.04	8.630	
	Hebe - - - - -	23.1	35.4	48.3	12 0 35.60	2	26.828			
	Weisse XII, 1047 -	29.6	42 2	54.7	0 42.17	2	35.637	0 6.57	8.809	
	Hebe - - - - -	38.1	49.7	3.0	3 50.27	2	26.742			
	Weisse XII, 1047 -	44.5	56.9	9.2	3 56.87	2	35.638	− 0 6.67	+ 8.896	
April 13	Weisse XII, 929 -	21.8	34.1	47.4	10 43 34.43	1	37.685	+ 0 40.94	− 47.058	
	Weisse XII, 933 -	39.0	51.8		43 51.88	1	36.393			
	Hebe - - - - -	2.5	15.5	28.3	44 15.37	3	24.663			
	Weisse XII, 929 -	51.0	3.2	16.0	59 3.40	1	37.755	0 40.73	46.614	Corr. Chron. s. +48.57
	Weisse XII, 933 -	8.0	21.0		59 20.80	1	36.369			α δ
	Hebe - - - - -	31.5	44.1	56.8	59 44.13	3	24.289			h. m. s. ° ′ ″
	Weisse XII, 929 - -	34.3	47.1	59.7	11 3 47.03	1	37.900	0 40.10	46.509	Weisse XII, 929, 12 53 57.04 +13 58 32.(
	Hebe - - - - -		27.5	39.5	4 27.13	3	24.329			
	Weisse XII, 929 - -	46.0	58.3	11.0	6 58.43	1	37.921	0 40.45	46.469	Hebe—Weisse XII, 929, Δ α Δ δ
	Hebe - - - - -		39.0	51.2	7 38.88	3	24.310			h. m. s. m. s. ′ ″ Sid. T. 11 23 41.46 +0 39.61 −11 51.1
	Weisse XII, 929 - -	19.5	32.1	44.7	12 32.10	1	37.805	0 39.80	46.430	Δ ρ .00 — .2
	Hebe - - - - -	59.5	12.1	24.1	13 11.90	3	24.155			p — .09 + 1.9
	Weisse XII, 929 - -	43.2	56.1	8.5	15 55.93	1	37.871	0 39.64	46.338	
	Hebe - - - - -	23.0	35.7	48.0	16 35.57	3	24.129			
	Weisse XII, 929 - -	2.0	15.0		18 15.02	1	37.899	0 39.95	46.480	
	Hebe - - - - -	42.7	54.7	7.5	18 54.97	3	24.299			
	Weisse XII, 929 - -	31.6	44.1	56.0	22 43.90	1	37.942	0 39.60	46.209	
	Hebe - - - - -	11.0	23.5	36.0	22 23.50	3	24.071			
	Weisse XII, 929 - -	13.2	25.7	37.9	29 25.60	1	37.919	0 39.23	46.216	
	Hebe - - - - -	52.1	5.0	17.4	30 4.83	3	24.056			
	Weisse XII, 929 - -	3.3	16.2	29.0	34 16.17	1	37.900	0 38.66	46.049	
	Hebe - - - - -	42.5	54.7	7.3	34 54.83	3	23.869			
	Weisse XII, 929 - -	13.7	26.3	39.1	38 26.37	1	37.849	0 39.23	45.902	
	Hebe - - - - -	53.1	5.6	18.1	39 5.60	3	23.671			
	Weisse XII, 929 - -	28.7	41 2	53.7	43 41.20	1	37.807	0 38.40	45.870	
	Hebe - - - - -	7.1	19.7	32.0	44 19.60	3	23.597			
	Weisse XII, 929 - -	11.3	24.1	36.0	48 23.80	1	37.875	0 38.80	45.957	
	Hebe - - - - -	50.2	2.5	15.1	49 2.60	3	23.752			
	Weisse XII, 929 - -	51.3	3.7	16.0	55 3.67	1	37.887	+ 0 39.00	− 45.634	
	Hebe - - - - -		42.6	55.1	55 42.67	3	23.441			Corr. Chron. s. +50.37
April 14	Hebe - - - - -	14.2		39.0	11 8 26.60	3	36.601			α δ
	Weisse XII, 929 - -	23.2	35.2	48.0	8 35.40	2	41.740	− 0 8.80	− 24.773	h. m. s. ° ′ ″
	Hebe - - - - -	49.5		15.2	12 2.35	3	36.445			Weisse XII, 929, 12 53 57.05 +13 58 32.7
	Weisse XII, 929 - -	59.5	11.5		12 11.50	2	41.660	0 9.15	24.697	Hebe—Weisse XII, 929, Δ α Δ δ
	Hebe - - - - -	14.2		39.5	17 26.85	3	36.476			h. m. s. m. s. ′ ″
	Weisse X'I, 929 - -	24.1		19.2	17 36.65	2	41.741	0 9.80	24.647	Sid. T. 11 27 42.60 — 0 9.67 — 6 16.1
	Hebe - - - - -	32.1		57.7	20 44.90	3	36.360			Δ ρ .00 — .1
	Weisse XII, 929 - -	41.7		7.8	20 54.75	2	41.732	− 0 9.85	− 24.540	p — .08 + 1.9

(Conitnued.)

HEBE.

[DA]TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.	RESULTS.
[18]50.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
[Apr]il 14	Hebe - - - - - -	16. 3		40. 9	11 25 28. 60	3	36. 135			
	Weisse XII, 929 - -	26. 1	38. 5	51. 3	25 38. 63	2	41. 650	— 0 10. 00	— 24. 397	
	Hebe - - - - - -	27. 3		52. 7	28 40. 00	3	36. 138			
	Weisse XII, 929 - -	37. 2	49. 3	2. 7	28 49. 73	2	41. 625	0 9. 73	24. 425	
	Hebe - - - - - -	29. 7		53. 0	34 42. 35	3	36. 022			
	Weisse XII, 928 - -	39. 3	52. 0	5. 1	34 52. 13	2	41. 562	0 9. 78	24. 372	
	Hebe - - - - - -	54. 3		19. 4	37 6. 85	3	36. 121			
	Weisse XII, 929 - -	4. 0		29. 3	37 16. 65	2	41. 590	0 9. 80	24. 443	
	Hebe - - - - - -	40. 7		5. 3	39 53. 00	3	35. 940			
	Weisse XII, 929 - -	50. 3	2. 6	15. 3	40 2. 73	2	41. 536	0 9. 83	24. 316	
	Hebe - - - - - -	48. 2		13. 2	44 0. 70	3	35. 782			
	Weisse XII, 929 - -	58. 2		23. 4	44 10. 80	2	41. 560	— 0 10. 10	— 24. 134	
[Ap]ril 15	Hebe - - - - - -	4. 3	17. 1	29. 5	11 28 16. 97	2	43. 388			
	Weisse XII, 929 - -	2. 7	15. 1	28. 0	29 15. 26	2	39. 749	— 0 58. 29	— 3. 639	
	Hebe - - - - - -	48. 3	0. 7	13. 1	33 0. 70	2	36. 380			s.
	Weisse XII, 929 - -	47. 1	59. 3	12. 0	33 59. 47	2	32. 783	0 58. 77	3. 597	Corr. Chron. + 52. 90
	Hebe - - - - - -	33. 4	45 1	58. 5	36 45. 67	2	36. 239			α δ h. m. s. ° ′ ″
	Weisse XII, 929 - -	32. 0	44. 3	57. 1	37 44. 47	2	32. 690	0 58. 80	3. 549	Weisse XII, 929, 12 53 57. 06 +13 58 32. 88
	Hebe - - - - - -	3. 1	15. 4	28. 1	39 15. 53	2	36. 270			Hebe—Weisse XII, 929, Δα Δδ
	Weisse XII, 929 - -	2. 1	14. 3	27. 0	40 14. 47	2	32. 575	0 58. 94	3. 695	h. m. s. m. s. ′ ″
	Hebe - - - - - -	44. 2	57. 1	9. 1	42 56. 80	2	36. 190			Sid. T. 11 50 42. 37 — 0 59. 29 — 0 52. 59 Δρ . 00 — . 02
	Weisse XII, 929 - -	43. 2	56. 0	8. 1	43 55. 77	2	32. 649	0 58. 97	3. 541	p — . 06 + 1. 83
	Hebe - - - - - -	21. 0	33. 3	46. 1	46 33. 47	2	36. 078			
	Weisse XII, 929 - -	19. 2	32. 5	45. 0	47 32. 23	2	32. 620	0 58. 76	3. 558	
	Hebe - - - - - -	4. 7	17. 1	29. 5	50 17. 10	2	35. 950			
	Weisse XII, 929 - -		16. 7	29. 1	51 16. 70	2	32. 550	0 59. 60	3. 400	
	Hebe - - - - - -	9. 2	22. 1	35. 0	57 22. 10	2	35. 767			
	Weisse XII, 929 - -	9. 0	21. 7	34. 1	58 21. 60	2	32. 439	0 59. 50	3. 328	
	Hebe - - - - - -	8. 2	20. 5	33. 3	12 0 20. 67	2	35. 769			
	Weisse XII, 929 - -	7. 7	20. 2	33. 0	1 20. 30	2	32. 430	0 59. 63	3. 336	
	Hebe - - - - - -	48. 1	0. 7	13. 2	3 0. 67	2	35. 560			
	Weisse XII, 929 - -	48. 0	0. 4	13. 1	4 0. 50	2	32. 477	0 59. 83	3. 083	
	Hebe - - - - - -	30. 4	43. 0	55. 7	8 43. 03	2	35. 471			
	Weisse XII, 929 - -	30. 2	43. 0	56. 0	9. 43. 07	2	32. 392	1 0. 04	3. 079	
	Hebe - - - - - -	8. 5	21. 0	33. 2	11 20. 90	2	35. 595			s.
	Weisse XII, 929 - -	8. 7	21. 2	33. 7	12 21. 20	2	32. 331	— 1 0. 30	— 3. 264	Corr. Chron. + 2. 16 α δ
[A]pril 15	Hebe - - - - - -	32. 9	45. 0	58. 4	12 29 45. 44	2	29. 585			h. m. s. ° ′ ″
	Weisse XII, 929 - -		46. 2	58. 9	30 46. 28	2	26. 589	— 1 0. 84	— 2. 996	Weisse XII, 929, 12 53 37. 06 + 13 58 32. 88 Weisse XII, 933, 12 54 14. 75 13 58 53. 23
	Hebe - - - - - -	27. 0	39. 8	52. 3	32 39. 71	2	29. 509			Hebe—Weisse XII, 929, Δα Δδ
	Weisse XII, 929 - -		40. 4	53. 4	33 40. 57	2	26. 615	1 0. 86	2. 894	h. m. s. m. s. ′ ″
	933 - -	45. 6	57. 9	10. 5	33 58. 02	2	25. 095	1 18 31	4. 414	Sid. T. 12 35 39. 62 — 1 0. 94 — 0 44. 29
	Hebe - - - - - -	17. 4	29. 8	42. 4	35 29. 85	2	29. 440			Δρ . 00 — . 01
	Weisse XII, 929 - -	18. 2	30. 3	43. 4	36 30. 61	2	26. 521	1 0. 76	2. 919	p — . 01 + 1. 81
	933 - -		48. 4	0. 9	36 48. 42	2	25. 181	1 18. 57	4. 259	Hebe — Weisse XII, 933.
	Hebe - - - - - -	20. 0	32. 4	44. 9	38 32. 45	2	29. 398			Sid. T. 12 37 7. 03 — 1 18. 46 — 1 5. 49
	Weisse XII, 929 - -	20. 8	33. 3	46. 0	39 33 39	2	26. 568	1 0. 94	2. 830	Δρ . 00 — . 02
	933 - -	38. 4	50. 9	2. 5	39 50. 60	2	25. 228	— 1 18. 15	— 4. 170	p — . 01 + 1. 80 (Continued.)

HEBE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.
		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
1850. April 15	Hebe	27.2	39.9	52.5	12 41 49.87	2	29.372		
	Weisse XII, 929		41.0	54.0	42 41.17	2	26.599	— 1 1.30	— 2.773
	933	46.0	58.8	11.3	42 58.69	2	25.171	— 1 18.82	— 4.201
April 17	Hebe	3.2	15.4	28.0	10 33 15.53	2	35.649		
	Weisse XII, 929	34.7	47.5	0.1	35 47.43	3	40.056	— 2 31.90	+ 34.319
	933			17.5	36 4.98	3	38.723	2 49.45	32.986
	Hebe	52.8	4.7	17.0	39 4.67	2	35.712		
	Weisse XII, 929	24.3	37.5	49.7	41 37.16	3	40.091	2 32.49	34.291
	933			17.5	41 54.61	3	38.690	2 49.94	32.891
	Hebe	27.7	40.1	52.7	45 40.17	2	35.529		
	Weisse XII, 829	0.7	13.3	26.2	48 13.40	3	39.920	2 33.23	34.303
	933		30.3	43.7	48 30.65	3	38.807	2 50.48	33.190
	Hebe	29.4	41.7	54.1	51 41.73	2	35.398		
	Weisse XII, 929	1.3	14.0	26.7	54 14.00	3	40.039	2 32.27	34.553
	933	19.0		44.3	54 31.65	3	38.479	2 49.92	32.993
	Hebe	39.0	51.4	4.2	56 51.53	2	35.253		
	Weisse XII, 929	12.0	24.3	37.1	59 24.47	3	39.872	2 32.94	34.531
	933			55.2	59 42.63	3	38.446	2 51.10	33.105
	Hebe	28.1	40.0	52.7	11 2 40.26	2	35.030		
	Weisse XII, 929	1.2	13.0	26.2	5 13.47	3	39.831	2 33.21	34.713
	933	18.2	30.7	43.0	5 30.63	3	38.400	2 50.37	33.282
	Hebe	4.2	16.7	29.2	7 16.70	2	35.020		
	Weisse XII, 929	38.2	50.4	3.5	9 50.70	3	39.755	2 34.00	34.647
	933		7.7	21.0	10 8.10	3	38.430	2 51.40	33.322
	Hebe	37.3	49.5	2.3	13 49.70	2	34.940		
	Weisse XII, 929	10.5	23.5	36.1	16 23.37	3	39.643	2 33.67	34.615
	933			53.5	16 40.32	3	38.270	— 2 50.62	+ 33.242
April 29	Weisse XII. 706	20.2	33.1	46.0	12 21 33.10	2	34.350	+ 1 29.47	— 14.800
	4301, B. A. C.		37.0	50.0	21 37.00	1	44.038	1 25.57	35.279
	Hebe	50.2	2.5	15.0	23 2.57	2	49.150		
	Weisse XII, 706	43.5	56.2		28 56.27	2	34.161	1 29.30	14.824
	4301, B. A. C.	48.0	0.5	13.2	29 0.57	1	43.945	1 25.00	35.207
	Hebe	13.0	25.5		30 25.57	2	48.985		
	Weisse XII, 706	20.5	33.7	46.0	35 33.40	2	34.142	1 28.40	14.876
	4301, B. A. C.		38.0	50.2	35 37.65	1	44.060	1 24.15	35.125
	Hebe	49.3	1.8	14.3	37 1.80	2	49.018		
	Weisse XII, 706	23.2		49.0	52 36.10	2	34.225	1 28.65	14.715
	4301, B. A. C.	27.9	40.5	53.2	52 40.53	1	44.182	1 24.22	34.925
	Hebe	52.0		17.5	54 4.75	2	48.940		
	Weisse XII, 706	45.5	58.2	11.0	13 1 58.23	2	34.170	1 28.00	14.585
	4301, B. A. C.	49.7	2.5	15.2	2 2.47	1	44.050	1 23.76	34.872
	Hebe	13.5	26.2	39.0	3 26.23	2	48.755		
	Weisse XII, 706	41.3	54.1	6.0	8 53.80	2	34.290	1 27.90	14.630
	4301, B. A. C.		58.0	10.7	8 58.10	1	44.301	1 23.60	34.786
	Hebe	9.0	21.8	34.3	10 21.70	2	48.920		
	Weisse XII, 706	33.1	46.2	58.3	13 45.87	2	33.910	1 28.40	14.460
	4301, B. A. C.	37.2		2.5	14 49.85	1	43.921	+ 1 24.42	— 34.616
	Hebe	1.5	14.2	27.1	16 14.27	2	48.370		

RESULTS.

April 17

Corr. Chron. + 54.86 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XII, 929,	12 53 57.07	+13 58 33.
933,	12 54 14.77	13 58 53.

Hebe — Weisse XII, 929,

	h. m. s.	Δα (m. s.)	Δδ (′ ″)
Sid. T.	10 54 42.20	— 2 32.96	+ 8 50
Δρ		.00	
p		— .11	+ 1

Hebe — Weisse XII, 933.

	h. m. s.	m. s.	′ ″
Sid. T.	10 54 42.20	— 2 50.41	+ 8 29.
Δρ		.00	
p		— .11	+ 1.

April 29

Corr. Chron. + 1 11.25 m s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XII, 706,	12 41 19.90	+14 51 17.
4301, B. A. C.	12 41 24.41	+14 56 28.

Hebe — Weisse XII, 706,

	h. m. s.	Δα (m. s.)	Δδ (′ ″)
Sid. T.	13 9 50.52	+ 1 28.02	— 3 44.
Δρ		.00	— .
p		+ .02	+ 1.

Hebe — 4301, B. A. C.

	h. m. s.	m. s.	′ ″
Sid. T.	12 51 50.80	+ 1 24.40	— 8 55.
Δρ		.00	— .
p		+ .01	+ 1.

(Continued.)

HEBE.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
50.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
il 29	Weisse XII, 706 - -	43. 5	56. 3	9. 0	13 17 56. 27	2	33. 960	+ 1 27. 13	— 14. 529
	Hebe - - - - -	10. 5	23. 5	36. 2	19 23. 40	2	48. 489		
	Weisse XII, 706 - -	20. 8	34. 0	47. 0	21 33. 93	2	33. 772	1 27. 30	14. 647
	Hebe - - - - -	48. 7	1. 0	14. 0	23 1. 23	2	48. 419		
	Weisse XII, 706 - -	32. 1	44. 7	57. 7	25 44. 83	2	33. 829	1 28. 10	14. 486
	Hebe - - - - -		13. 1	25. 5	27 12. 93	2	48. 315		
	Weisse XII, 706 - -	37. 4	49. 7	2. 5	29 49. 83	2	33. 812	1 27. 90	14. 601
	Hebe - - - - -	5. 2	18. 0	30. 0	31 17. 73	2	48. 413		
	Weisse XII, 706 - -	30. 2	43. 0	55. 2	33 42. 80	2	33. 922	1 26. 43	14. 499
	Hebe - - - - -	56. 7	9. 0	22. 0	35 9. 23	2	48. 421		
	Weisse XII, 706 - -	9. 5	22. 0	34. 0	40 21. 83	2	33. 910	+ 1 27. 34	— 14. 409
	Hebe - - - - -	36. 5	49. 3	1. 7	41 49. 17	2	48. 319		
il 30	Weisse XII, 706 - -	36. 5	49. 3	2. 0	12 51 49. 27	2	36. 559	+ 0 52. 80	— 7. 730
	4301, B. A. C. - -		54. 0	6. 7	51 53. 97	1	46. 238	0 47. 60	28. 218
	Hebe - - - - -	29. 0	41. 5	54. 2	52 41. 57	2	44. 289		
	Weisse XII, 706 - -	55. 0	57. 3	9. 5	57 57. 27	2	36. 537	0 52. 25	7. 718
	4301, B A. C. - -		2. 0	14. 3	58 2. 02	1	46. 270	0 47. 50	28. 152
	Hebe - - - - -		49. 3	2. 0	58 49. 52	2	44. 255		
	Weisse XII, 706 - -	38. 3	51. 2	3. 7	13 2 51. 07	2	36. 312	0 52. 25	7. 990
	4301, B. A. C - -		55. 6		2 55. 47	1	46. 250	0 47. 85	28. 219
	Hebe - - - - -		43. 3	56. 1	3 43. 32	2	44. 302		
	Weisse XII, 706 - -	37. 0	49. 2	1. 5	7 49. 23	2	36. 563	0 52. 30	7. 639
	4301, B. A C. - -	41. 0	53. 5		7 53. 38	1	46. 469	0 48. 19	27. 900
	Hebe - - - - -	29. 2	41. 5	54. 0	8 41. 57	2	44. 202		
	Weisse XII, 706 - -	38. 5		4. 1	13 51. 30	2	36. 625	0 51. 53	7. 774
	4301, B. A. C. - -	43. 2	55. 7		13 55. 53	1	46. 311	0 47. 30	28. 255
	Hebe - - - - -	30. 2	43. 0	55. 3	14 42. 83	2	44. 399		
	Weisse XII, 706 - -	37. 3		2. 1	18 49. 70	2	36. 719	0 51. 70	7. 551
	4301, B. A. C. - -		53. 7	7. 0	18 53. 60	1	46. 422	0 47. 80	28. 015
	Hebe - - - - -		41. 5	54. 2	19 41. 40	2	44. 270		
	Weisse XII, 706 - -	50. 0	2. 4	15. 1	25 2. 50	2	36. 774	0 51. 00	7. 528
	4301, B. A. O. - -	54. 2	6. 3	19. 0	25 6. 50	1	46. 482	+ 0 47. 00	— 27. 987
	Hebe - - - - -	41. 0	53. 4	6. 1	25 53. 50	2	44. 302		
y 1	Weisse XII, 706 - -	29. 9	42. 3	55. 1	12 38 42. 43	2	34. 160	+ 0 17. 07	— 1. 989
	Hebe - - - - -	47. 0	59. 0	12. 5	38 59. 50	2	36. 149		
	Weisse XII, 706 - -	29. 2	42. 1	54. 1	41 41. 80	2	34. 119	0 17. 17	1. 993
	Hebe - - - - -			11. 7	41 58. 97	2	36. 112		
	Weisse XII, 706 - -	22. 7	35. 1	48. 2	46 35. 33	2	34. 253	0 17. 22	1. 979
	Hebe - - - - -	40. 0		5. 1	46 52. 55	2	36. 232		
	Weisse XII, 706 - -	24. 3	37. 1		49 37. 07	2	34. 218	0 16. 66	1. 929
	Hebe - - - - -	40. 6	54. 1	6. 5	49 53. 73	2	36. 147		
	Weisse XII, 706 - -	57. 4	10. 4	22. 5	52 10. 10	2	34. 422	0 16. 90	1. 895
	Hebe - - - - -	13. 8		40. 2	52 27. 00	2	36. 317		
	Weisse XII, 706 - -	42. 4	55. 0		56 54. 90	2	34. 381	0 17. 40	1. 871
	Hebe - - - - -	59. 7	12. 1	25. 1	57 12. 30	2	36. 252		
	Weisse XII, 706 - -	25. 2	38. 1	51. 1	13 0 38. 13	2	34. 367	+ 0 16. 62	— 1. 941
	Hebe - - - - -	42. 0		7. 5	0 54. 75	2	36. 308		

RESULTS.

April 30:

		m. s.
Corr. Chron.		+ 1 11. 24

	α	δ
	h. m. s.	° ′ ″
Weisse XII, 706,	12 41 19. 90	+14 51 17. 13
4301, B. A C.,	12 41 24. 41	14 56 28. 49

Hebe — Weisse XII, 706,

		Δ α	Δ δ
	h. m. s.	m. s.	m. s.
Sid. T.	13 10 21. 77	+ 0 51. 90	— 1 58. 41
	Δ ρ	. 00	— . 04
	p	+ . 02	+ 1. 67

Hebe — 4301, B. A. C.

	h. m. s.	m. s.	′ ″
Sid. T.	13 10 21. 77	+ 0 47. 61	— 7 11. 99
	Δ ρ	. 00	— . 14
	p	+ . 02	+ 1. 66

May 1:

		m. s.
Corr. Chron.		+ 1 14. 04

	α	δ
	h. m. s.	° ″ ′
Weisse XII, 706,	12 41 19. 90	+14 51 17. 29

Hebe — Weisse XII, 706,

		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	12 59 19. 31	+ 0 16. 98	— 0 29. 06
	Δ ρ	. 00	— . 01
	p	+ . 02	+ 1. 68

(Continued.)

HEBE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. rev.	m. s.	rev.	
May 1	Weisse XII, 706 - -	8.3		34.1	13 3 21.20	2 34.399	+ 0 16.75	— 1.851	
	Hebe - - - - -	25.2		50.7	3 37.95	2 36.250			
	Weisse XII, 706 - -	20.4	33.1	45.6	5 32.23	2 34.570	0 17.52	1.782	
	Hebe - - - - -	37.0		2.5	5 49.75	2 36.352			
	Weisse XII, 706 - -	23.1	35.5	48.3	9 35.63	2 34.563	0 16.97	1.845	
	Hebe - - - - -	40.0		5.2	9 52.60	2 36.408			
	Weisse XII, 706 - -	7.2		32.1	13 19.65	2 34.790	0 17.00	1.730	
	Hebe - - - - -	24.3		49.0	13 36.65	2 36.520			
	Weisse XII, 706 - -	18.2	31.0		15 30.97	2 34.678	+ 0 16.50	— 1.882	
	Hebe - - - - -	35.0	47.2	0.2	15 47.47	2 36.560			
May 9	Hebe - - - - -	54.0	6.0	19.0	12 10 6.33	2 42.190			
	4301, B. A. C. - -	40.2	52.0	5.0	13 52.40	2 36.360	— 3 46.07	— 5.830	m. s.
	Hebe - - - - -	27.1	29.2	52.0	17 39.43	2 42.356			Corr. Chron. +1 35.12
	4301, B. A. C. - -	13.0	25.2	38.0	21 25.40	2 36.219	3 45.97	6.136	α δ
	Hebe - - - - -	12.7	25.1	37.1	23 24.97	2 42.449			h. m. s. ° ′ ″
	4301, B. A. C. - -	58.2	11.0	23.7	27 10.97	2 36.220	3 46.00	6.229	4301, B. A. C., 12 41 24.45 +14 56 29.60
	Hebe - - - - -	17.2	29.5	42.0	29 29.57	2 42.322			Hebe—4301, B. A. C., Δα Δδ; h. m. s. m. s. ′ ″
	4301, B. A. C. - -	3.3	16.0	28.8	33 16.03	2 36.112	3 46.46	6.210	Sid. T. 12 28 7.13 — 3 45.93 — 1 34.11
	Hebe - - - - -	15.2	28.1	40.6	35 27.96	2 42.288			Δρ .00 — .03
	4301, B. A. C. - -	1.3	13.0	25.5	39 13.27	2 36.040	3 45.31	6.248	p — .01 + 1.62
	Hebe - - - - -	51.0	4.0	16.5	43 3.83	2 42.162			
	4301, B. A. C. - -	37.1	49.5	2.3	46 49.63	2 36.075	— 3 45.80	— 6.087	
May 11	Weisse XII, 580 - -	14.1	27.2	39.5	12 19 26.93	2 24.555	+ 2 19.17	— 20.344	m. s.
	Hebe - - - - -	33.2	46.1	59.0	21 46.10	2 44.899			Corr. Chron. + 1 25.85
	Weisse XII, 580 - -	34.9	47.2	0.0	30 47.37	2 24.700	2 19.13	20.210	
	Hebe - - - - -	54.0	6.5	19.0	33 6.50	2 44.910			α δ; h. m. s. ° ′ ″
	Weisse XII, 580 - -	19.1	31.3	43.0	35 31.13	2 24.700	2 18.20	20.269	Weisse XII, 580, 12 34 31.79 +14 58 55.86
	Hebe - - - - -	37.0	49.0	2.0	37 49.33	2 44.969			
	Weisse XII, 580 - -	43.0	55.1	8.1	41 55.40	2 24.622	2 17.73	20.248	Hebe—Weisse XII, 580, Δα Δδ; h. m. s. m. s. ′ ″
	Hebe - - - - -	0.5	13.0	25.9	44 13.13	2 44.870			Sid. T. 12 44 30.81 + 2 18.32 — 5 11.98
	Weisse XII, 580 - -	13.2	25.8	39.1	47 26.03	2 24.569	2 18.35	20.266	Δρ .00 — .10
	Hebe - - - - -	31.7	44.0		49 44.38	2 44.835			p + .01 — 1.60
	Weisse XII, 580 - -	34.3	46.5	59.1	52 46.63	2 24.588	2 17.75	20.402	
	Hebe - - - - -	52.0	4.3		55 4.38	2 44.990			
	Weisse XII, 580 - -	59.3	12.0	24.7	57 12.00	2 24.762	+ 2 17.90	— 20.358	
	Hebe - - - - -		30.0	42.5	59 29.90	2 45.120			m. s.; Corr. Chron. + 1 30.77
May 12	Weisse XII, 580 - -	28.4	40.7	53.5	11 33 40.87	2 27.988	+ 1 58.23	— 23.565	
	Hebe - - - - -	26.0	39.3	52.0	35 39.10	3 21.641			α δ; h. m. s. ° ′ ″
	Weisse XII, 580 - -	55.1	7.5	20.0	38 7.53	2 27.922	1 57.97	23.660	Weisse XII. 580, 12 34 31.79 +14 58 55.93
	Hebe - - - - -	53.0		18.0	40 5.50	3 21.670			
	Weisse XII, 580 - -	44.2	57.1	9.2	46 56.83	2 27.908	1 57.60	23.617	Hebe—Weisse XII, 580, Δα Δδ; h. m. s. m. s. ″
	Hebe - - - - -	42.0	54.3	7.0	48 54.43	3 21.613			Sid. T. 11 59 53.61 +1 57.42 —6 3.04
	Weisse XII, 580 - -	51.6	4.0	17.1	51 4.23	2 27.822	+ 1 57.44	— 23.675	Δρ .00 — .12
	Hebe - - - - -	49.1	1.7	14.2	53 1.67	3 21.585			p — .02 + 1.61

(Continued.)

HEBE.

DATE.	OBJECTS.	Chronometer times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
[Ma]y 12	Weisse XII, 580 - -	55.2	8.9	20.4	11 55 7.83	2	27.890	+ 1 57.55	— 23.535	
	Hebe - - - - -		5.8	18.0	57 5.38	3	21.513			
	Weisse XII, 580 - -	52.4	5.0	18.1	59 5.17	2	27.738	1 56.73	23.544	
	Hebe - - - - -	18.7	2.0	15.0	12 0 1.90	3	21.370			
	Weisse XII, 580 - -	45.3	57.3	10.0	2 57.53	2	27.767	1 56.45	23.505	
	Hebe - - - - -	41.5	54.0		4 53.98	3	21.369			
	Weisse XII, 580 - -	16.3	29.1	41.7	8 29.03	2	27.712	1 57.90	23.835	
	Hebe - - - - -	14.1	27.0	59.7	10 26.93	3	21.635			
	Weisse XII, 580 - -	42.1	54.3	7.0	12 54.47	2	27.782	1 57.23	23.629	
	Hebe - - - - -	39.4	51.7	4.0	14 51.70	3	21.499			
	Weisse XII, 580 - -	38.4	50.7	3.1	16 50.73	2	27.682	+ 1 57.07	— 23.650	
	Hebe - - - - -	35.1	48.0	0.3	18 47.80	3	21.420			
[Ma]y 16	Weisse XII, 580 - -	31.7	44.2	57.1	29 44.33	1	32.391	0 44.35	45.722	Corr. Chron. m. s. +1 43.22 α h. m. s. δ ° ′ ″ Weisse XII, 580, 12 34 31.78 +14 58 56.43 Hebe — Weisse XII, 580, Δα Δδ h. m. s. m. s. ′ ″ Sid. T. 12 45 25.43 +0 43.36 —11 41.60 Δρ .00 — .23 p + .01 + 1.58
	Hebe - - - - -		29.0	41.0	30 28.69	2	47.946			
	Weisse XII, 580 - -	7.1	19.4	32.3	38 19.60	1	32.359	0 43.00	45.840	
	Hebe - - - - -	50.3	2.5	15.0	39 2.60	2	48.032			
	Weisse XII, 580 - -	8.1	20.3	33.2	46 20.53	1	32.299	0 43.04	45.778	
	Hebe - - - - -	51.2	3.5	16.0	47 3.57	2	47.910			
	Weisse XII, 580 - -	18.1		43.0	57 30.55	1	31.452	+ 0 43.05	— 45.254	
	Hebe - - - - -	1.0		26.2	58 13.60	2	46.539			
[Ma]y 18	Weisse XII, 580 - -	11.2		37.1	13 32 24.15	1	40.618	+ 0 13.85	— 61.672	Corr. Chron. m. s. +1 37.05 α h. m. s. δ ° ′ ″ Weisse XII, 580, 12 34 31.77 +14 58 56.66 Hebe — Weisse XII, 580 Δα Δδ h. m. s. m. s. ′ ″ Sid. T. 13 53 12.18. + 0 13.32 —15 49.00 Δρ .00 — .32 p + .11 + 1.70
	Hebe - - - - -	25.7		50.3	32 38.00	3	42.210			
	Weisse XII, 580 - -	25.0		50.2	38 37.60	1	40.569	0 13.15	61.748	
	Hebe - - - - -	38.3		3.2	38 50.75	3	42.237			
	Weisse XII, 580 - -	39.2		4.0	43 51.60	1	40.619	0 13.60	61.581	
	Hebe - - - - -	52.5		17.9	44 5.20	3	42.120			
	Weisse XII, 580 - -	20.2		45.1	46 32.65	1	40.581	0 13.25	61.702	
	Hebe - - - - -	33.3		58.5	46 45.90	3	42.203			
	Weisse XII, 580 - -	49.2		14.1	51 1.65	1	40.453	0 13.10	61.814	
	Hebe - - - - -	2.3		27.2	51 14.75	3	42.187			
	Weisse XII, 580 - -	57.3		22.2	55 9.75	1	40.589	0 13.50	61.762	
	Hebe - - - - -	10.5		36.0	55 23.25	3	42.271			
	Weisse XII, 580 - -	56.0		21.1	58 8.55	1	40.493	0 12.95	61.875	
	Hebe - - - - -	9.0		34.0	58 21.50	3	42.288			
	Weisse XII, 580 - -	4.2		29.5	14 0 16.85	1	40.596	0 13.05	61.696	
	Hebe - - - - -	17.5		42.3	0 29.90	3	42.212			
	Weisse XII, 580 - -	11.1		36.2	2 23.65	1	40.517	0 13.25	61.762	
	Hebe - - - - -	24.3		49.5	2 36.90	3	42.199			
	Weisse XII, 580 - -	59.3		24.4	5 11.85	1	40.500	+ 0 13.55	— 61.842	
	Hebe - - - - -	12.7		38.1	5 25.40	3	42.262			
[Ma]y 20	Weisse XII, 519 - -	4.2	17.2	29.2	12 6 16.87	2	38.925	+ 3 18.30	+ 2.210	
	Hebe - - - - -	22.5	35.0	48.0	9 35.17	2	36.715			
	Weisse XII, 519 - -	1.2	14.0	26.0	13 13.73	2	38.804	+ 3 18.60	+ 2.229	
	Hebe - - - - -	20.0	32.0	45.0	16 32.33	2	36.575			

(Continued.)

HEBE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
1850. May 20	Weisse XII, 519 .	25.3	37.0	49.3	12 19 37.20	2	38.756	+ 3 18.43	+ 2.034
	Hebé			8.0	22 55.63	2	36.722		
	Weisse XII, 519 .	1.5	13.7	26.0	28 13.73	2	38.680	3 18.40	2.045
	Hebe	19.7	32.0	44.7	31 32.13	2	36.635		
	Weisse XII, 519 .	10.2	22.7	36.0	41 22.96	2	38.587	+ 3 18.24	+ 1.809
	Hebe	28.5		53.9	44 41.20	2	36.778		
May 21	Weisse XII, 519 .	30.2	43.1		14 11 43.23	1	44.022	+ 3 7.20	— 8.640
	Hebe			3.0	14 50.43	2	22.750		
	Weisse XII, 519 .	48.2	1.0		23 1.13	1	44.050	3 8.37	9.097
	Hebe	57.0		22.0	26 9.50	1	53.147		
	Weisse XII, 519 .	19.4	32.3		28 32.43	1	44.081	3 7.90	9.010
	Hebe		40.2	53.0	31 40.33	1	53.091		
	Weisse XII, 519 .	34.1	47.0		34 47.00	1	44.237	3 7.57	9.082
	Hebe	42.0	54.2	7.5	37 54.57	1	53.319		
	Weisse XII, 519 .	13.2		38.0	41 25.60	1	44.179	3 7.53	9.345
	Hebe	20.3	33.4	45.7	44 33.13	1	53.524		
	Weisse XII, 519 .	18.5		43.0	47 30.75	1	44.160	3 7.65	9.459
	Hebe	26.2	38.3	50.7	50 38.40	1	53.619		
	Weisse XII, 519 .	44.7	57.0		52 57.13	1	44.249	+ 3 8.00	— 9.383
	Hebe	52.0	5.1	18.1	56 5.13	1	53.632		
May 22	Weisse XII, 519 .	11.0	24.0	36.7	12 56 23.90	1	46.780	+ 2 59.63	— 19.099
	Hebe	11.0	23.2	36.4	59 23.53	2	35.712		
	Weisse XII, 519 .	25.2	37.9	50.0	13 2 37.70	1	46.838	2 59.80	19.269
	Hebe	25.0	37.5	50.0	5 37.50	2	35.940		
	Weisse XII, 519 .	5.7	17.8	30.0	8 17.83	1	46.801	2 58.70	18.465
	Hebe	4.1	16.5	29.0	11 16.53	2	35.099		
	Weisse XII, 519 .	32.1	44.3	56.8	14 44.40	1	46.920	2 58.77	18.464
	Hebe	30.4	43.1	56.0	17 43.17	2	35.217		
	Weisse XII, 519 .	19.7	33.1	44.9	20 32.57	1	46.941	2 59.40	18.618
	Hebe	19.5	32.0	44.4	23 31.97	2	35.392		
	Weisse XII, 519 .	6.1	19.3	31.0	27 18.80	1	46.920	+ 2 59.63	— 18.613
	Hebe	6.2	18.2	30.9	30 18.43	2	35.366		
May 23	Weisse XII, 519 .	22.7	35.1	47.2	12 59 35.00	1	46.387	+ 2 53.70	— 31.075
	Hebe	16.4	28.7	41.0	13 2 28.70	2	47.295		
	Weisse XII, 519 .	14.2	26.2	38.7	5 26.36	1	46.275	2 52.90	31.174
	Hebe	6.5	19.3	32.0	8 19.26	2	47.282		
	Weisse XII, 519 .	30.2	43.0	55.2	12 42.80	1	46.297	2 53.67	31.199
	Hebe	23.7	36.5	49.2	15 36.47	2	47.329		
	Weisse XII, 519 .	34.3	46.8		18 46.73	1	46.232	2 52.90	31.242
	Hebe	27.2	39.7	52.0	21 39.63	2	47.307		
	Weisse XII, 519 .	36.2	49.0		27 48.96	1	46.252	+ 2 53.40	— 31.410
	Hebe	29.7	42.3	55.1	30 42.36	2	47.495		

RESULTS.

May 20.

Corr. Chron. — 1 m. 20.16 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XII, 519,	12 31 3.24	+14 37 56.00

Hebe—Weisse XII, 519,		Δ α (m. s.)	Δ δ (′ ″)
Sid. T.	12 23 43.13 (h. m. s.)	+ 3 18.39	+ 0 31.74
	Δ ρ	.00	.01
	p	— .01	+ 1.55

May 21.

Corr. Chron. — 1 m. 15.89 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XII, 519,	12 31 3.23	+14 37 56.11

Hebe — Weisse XII, 519,		Δ α (m. s.)	Δ δ (′ ″)
Sid. T.	14 34 21.36 (h. m. s.)	+ 3 7.74	— 2 20.55
	Δ ρ	.00	— .05
	p	+ .10	+ 1.63

May 22.

Corr. Chron. — 1 m. 14.43 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XII, 519,	12 31 3.22	+14 37 56.22

Hebe — Weisse XII, 519,		Δ α (m. s.)	Δ δ (′ ″)
Sid. T.	13 13 24.09 (h. m. s.)	+ 2 59.32	— 4 48.24
	Δ ρ	.00	— .10
	p	+ .03	+ 1.56

May 23.

Corr. Chron. — 1 m. 12.97 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XII, 519,	12 31 3.21	+14 37 56.33

Hebe — Weisse XII, 519,		Δα (m. s.)	Δ δ (′ ″)
Sid. T.	13 14 32.31 (h. m. s.)	+ 2 53.31	— 7 59.83
	Δ ρ	.00	— .16
	p	+ .03	+ 1.56

HEBE.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.	RESULTS.
50.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
26	Weisse XII, 519 .	39.6	52.1	4.7	13 19 52.13	1	29.312	+ 2 39.37	− 70.240	m. s.
	Hebe	19.2	31.3	44.0	22 31.50	3	39.472			Corr. Chron. — 1 8.34
	Weisse XII, 519 .	13.7	26.1	39.0	24 26.26	1	29.362	2 38.77	70.206	α δ
	Hebe	52.1	5.0	18.0	27 5.03	3	39.488			h. m. s. ° ′ ″ Weisse XII, 519, 12 31 3.18 +14 37 56.66
	Weisse XII, 519 .	54.2	6.8	19.2	29 6.67	1	29.252	2 39.03	70.366	Hebe—Weisse XII, 519, Δα Δδ
	Hebe	33.1	45.4	58.6	31 45.70	3	39.538			h. m. s. m. s. ′ ″
	Weisse XII, 519 .	54.1	6.2	19.2	33 6.43	1	29.303	2 39.60	70.356	Sid. T. 13 37 35.63 + 2 38.94 —18 1.35
	Hebe	33.7	46.1	58.3	35 46.03	3	39.579			Δρ .00 — .37 p + .05 + 1.55
	Weisse XII, 519 .	50.3	3.0	15.7	38 3.00	1	29.339	2 38.86	70.349	
	Hebe	29.2	42.1	54.3	40 41.86	3	39.608			
	Weisse XII, 519 .	51.5	4.7	17.0	43 4.40	1	29.340	2 38.70	70.382	
	Hebe	30.2	43.1	56.0	45 43.10	3	39.642			
	Weisse XII, 519 .	44.6	57.3		47 57.31	1	29.378	2 38.65	70.404	
	Hebe	23.2	36.0	48.7	50 35.96	3	39.702			
	Weisse XII, 519 .	51.3	3.6	17.1	53 4.00	1	29.290	+ 2 38.57	— 70.550	
	Hebe	30.0	42.7	55.0	55 42.57	3	39.760			
y 27	Weisse XII, 519 .	24.2	37.1		53 36.98	1	30.344	+ 2 37.45	— 84.781	m. s.
	Hebe	2.0	14.2	27.1	56 14.43	3	55.045			Corr. Chron. — 1 7.14
	Weisse XII, 519 .	7.2	19.4		58 19.72	1	30.383	2 36.65	84.798	α δ h. m. s. ° ′ ″
	Hebe	44.1	56.0	9.0	14 0 56.37	3	55.101			Weisse XII, 519, 12 34 3.17 +14 37 56.76
	Weisse XII, 519 .	0.3	12.7		3 12.73	1	30.361	2 36.70	84.888	Hebe—Weisse XII, 519, Δα Δδ
	Hebe	37.1	49.3	1.9	5 49.43	3	55.169			h. m. s. m. s ′ ″
	Weisse XII, 519 .	8.2	21.0	34.0	7 21.06	1	30.361	2 37.20	84.787	Sid. T. 14 4 33.49 + 2 36.80 +21 44.00
	Hebe	45.3	58.5	11.0	9 58.26	3	55.068			Δρ .00 — .46 p + .08 + 1.56
	Weisse XII, 519 .	36.3	48.7	1.0	12 48.66	1	30.303	+ 2 36.00	— 84.959	
	Hebe	12.1	24.8	37.1	15 24.66	3	55.182			
e 5	Weisse XII, 553 .	32.2	44.9	57.2	13 32 44.76	3	35.882	+ 1 9.61	+ 16.792	s.
	Hebe	42.0	54.1	7.0	33 54.37	2	49.002			Corr. Chron. — 0 55.32
	Weisse XII, 553 .	58.2	10.7	23.6	39 10.83	3	35.886	1 8.70	16.666	α δ h. m. s. ° ′ ″
	Hebe	0.7	19.3		40 19.53	2	49.132			Weisse XII, 553, 12 33 11.42 +13 32 21.75
	Weisse XII, 553 .	19.3		44.0	44 31.65	3	35.897	1 9.18	16.749	Hebe—Weisse XII, 553, Δα Δδ
	Hebe	28.0	41.0	53.5	45 40.83	2	49.060			h. m. s. m. s. ′ ″ Sid. T. 13 48 42.18 + 1 9.13 + 4 15.96
	Weisse XII, 553 .	34.2	46.7	59.1	51 46.66	3	35.905	1 8.84	16.678	Δρ .00 .09
	Hebe	43.0		8.0	52 55.50	2	49.139			p + .07 + 1.54
	Weisse XII, 553 .	32.2	44.0	57.1	58 44.43	3	35.838	1 8.97	16.558	
	Hebe	41.0	53.2	6.0	59 53.40	2	49.192			
	Weisse XII, 553 .	39.3	52.1	4.3	14 3 51.90	3	35.892	+ 1 9.50	+ 16.485	
	Hebe	49.0	1.2	14.0	5 1.40	2	49.319			

IRIS.

Date.	Objects.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
1850. March 31	Iris	7.2	20.0		13 21 20.00	1 43.453		
	A. Z., 210,43 . .	51.0	4.0	17.5	23 4.17	1 55.028	— 1 44.17	+ 11.575
	Iris	46.0	59.0	13.0	32 59.33	1 44.262		
	A. Z., 210,43 . .	30.0	43.4	57.0	34 43.47	1 55.695	1 44.14	11.433
	Iris	1.3	15.0	28.5	37 14.93	1 44.389		
	A. Z., 210,43 . .	45.5	58.3	12.0	38 58.60	1 55.901	1 43.67	11.512
	Iris	37.5	51.0		41 50.97	1 44.575		
	A. Z., 210,43 . .	21.0	34.7	48.0	43 34.57	1 56.048	1 43.60	11.473
	Iris		33.0	46.0	45 32.85	1 44.440		
	A. Z., 210,43 . .	3.5	16.6	30.3	47 16.80	1 56.208	1 43.95	11.768
	Iris	58.5			55 12.18	1 45.033		
	A. Z., 210,43 . .	42.7	56.5	10.0	56 56.40	1 56.419	1 44.22	11.386
	Iris	21.5	35.0	49.0	14 0 35.17	1 45.180		
	A. Z., 210,43 . .		19.2	33.1	2 19.32	1 56.629	1 44.15	11.449
	Iris	6.5	20.0		4 19.97	1 45.148		
	A. Z., 210,43 . .	51.3	4.4	18.0	6 4.57	1 56.750	1 44.60	11.602
	Iris	7.5	21.0	34.5	9 21.00	1 45.555		
	A. Z., 210,43 . .	51.7	5.0	18.2	11 4.97	1 56.879	1 43.97	11.324
	Iris	52.5	5.0	18.5	14 5.33	1 45.525		
	A. Z., 210,43 . .	36.0	49.7	3.3	15 49.66	1 56.960	1 44.33	11.435
	Iris		31.5	44.7	16 31.38	1 45.356		
	A. Z., 210,43 . .	2.0	15.3	29.0	18 15.43	1 57.061	1 44.05	11.705
	Iris	0.1	13.4	27.0	23 13.50	1 45.730		
	A. Z., 210,43 . .	43.8	58.1	11.2	24 57.70	1 57.270	— 1 44.20	+ 11.540
April 13	5345, B. A. C. . .	4.2	17.5	30.9	13 31 17.53	1 21.841	+ 1 29.80	— 95.759
	Iris		47.5	0.5	32 47.33	3 57.520		
	5345, B. A. C. . .	52.0	5.1	19.5	39 5.53	1 22.091	1 29.57	95.949
	Iris	22.0	34.8	48.5	40 35.10	3 57.960		
	5345, B. A. C. . .	28.2	41.7	55.0	47 41.63	1 22.446	1 29.20	95.832
	Iris	57.0	11.5	24.0	49 10.83	3 58.198		
	5345. B. A. C. . .	8.5	21.7	35.1	57 21.76	1 22.570	1 29.24	96.081
	Iris	38.0	51.0	4.0	58 51.00	3 58.571		
	5345, B. A. C. . .	15.2	28.3	42.0	14 6 28.50	1 23.080	1 28.83	95.648
	Iris	43.5	57.5	11.0	7 57.33	3 58.648		
	5345, B. A. C. . .	19.2	32.0	45.3	23 32.17	1 23.179	1 28.66	95.633
	Iris	47.5	1.0	14.0	25 0.83	3 58.732		
	5345, B. A. C. . .	22.0	35.3	49.0	35 35.43	1 22.329	1 28.27	95.510
	Iris	50.2	3.7	17.2	37 3.70	3 57.759		
	5345, B. A. C. . .	17.1	30.5	44.1	46 30.57	1 22.430	1 27.83	95.660
	Iris	45.0	58.5	11.7	47.58.40	3 58.010		
	5345, B. A. C. . .	51.2	5.1	18.3	15 44 4.87	1 21.031	1 26.50	95.264
	Iris		32.0	45.1	45 31.37	3 56.215		
	5345, B. A. C. . .	30.7	44.0	57.2	55 44.07	1 21.060	1 26.50	95.122
	Iris	57.0	10.7	24.0	57 10.57	3 56.102		
	5345, B. A. C. . .	21.0	34.3	48.1	16 3 34.47	1 21.0?5	+ 1 26.10	— 95.152
	Iris	47.0	0.7	14.0	5 0.57	3 56.151		

RESULTS.

March 31.

		α	δ
Corr. Chron.		s. + 29.22	
		h. m. s.	° ′ ″
A. Z., 210, 43,		16 6 43.52	—24 44 2.64
Iris — A. Z., 210, 43,		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	13 55 40.61	—1 44.09	+2 57.01
	Δ ρ	.01	.35
	p	— .12	+ 3.24

April 13.

		α	δ
Corr. Chron.		s. +48.67	
		h. m. s.	° ′ ″
5345, B. A. C.		15 58 53.65	—24 3 12.19
Iris — 5345, B. A. C.		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	14 32 22 04	+1 28.23	—24 27.93
	Δ ρ	— .06	— 2.46
	p	— .09	+ 3.59

IRIS.

ATE.	OBJECTS.	Observed times of transit.				Mic.		Planet—Star.		RESULTS.
		A.	B.	C.	Mean.			Δη	Δ mic.	
850.		s.	s.	s.	h. m s.	w.	revs.	m. s.	revs.	
ril 14	5345, B. A. C. . .	8.4	22.2	35.1	13 21 21.90	1	24.745	+ 0 57.60	− 89.135	s.
	Iris	6.0	19.5	33.0	22 19.50	3	53.800			Corr. Chron. +50.47
	5345, B. A. C. . .	4.3	17.9	31.0	27 17.40	1	25.180	0 58.30	88.975	α δ
	Iris	2.0	16.0	29.1	28 15.70	3	54.075			h. m. s. ° ′ ″
	5345, B. A. C. . .	58.1	11.3	25.2	31 11.53	1	25.380	0 57.80	88.886	5345, B. A. C. 15 58 53.67 −24 3 12.24
	Iris	55.4	9.5	23.1	32 9.33	3	54.186			Iris—5345, B. A. C. Δα Δδ
	5345, B. A. C. . .	41.3	55.0	8.3	38 54.87	1	25.595	0 57.46	88.911	h. m. s. m. s. ′ ″
	Iris	39.0	52.0	6.0	39 52.33	3	54.426			Sid. T. 13 50 13.11 +0 57.85 −22 45.40
	5345, B. A. C. . .	0.3	13.5	27.1	44 13.63	1	25.680	0 56.60	88.872	Δρ − .09 −j 2.61
	Iris		10.8	24.0	45 10.23	3	54.472			p − .13 + 3.47
	5345, B. A. C. . .	55.2	8.4	22.1	50 8.56	1	25.996	0 57.37	88.957	
	Iris	52.3	6.0	19.5	51 5.93	3	54.873			
	5345, B. A. C. . .	44.4	58.1	11.2	56 57.90	1	26.078	0 57.00	88.911	
	Iris	41.5	55.0		57 54.90	3	54.909			
	5345, B. A. C. . .	47.2	0.3	13.8	14 4 0.43	1	26.343	0 57.10	88.882	
	Iris	44.1	57.5	11.0	4 57.53	3	55.145			
	5345, B. A. C. . .	24.2	38.1	51.5	11 37.93	1	26.388	0 57.72	88.884	
	Iris	20.0	33.8		12 33.65	3	55.192			
	5345, B. A. C. . .	17.3	30.7	44.3	18 30.76	1	26.468	+ 0 56.57	− 88.967	
	Iris	14.1	27.6	40.3	19 27.33	3	55.355			
ril 15	5345, B. A. C. . .	30.2	43.7	57.1	13 22 43.67	1	22.970	+ 0 24.15	− 82.035	s.
	Iris		8.1	21.0	23 7.82	3	44.925			Corr. Chron. + 53.00
	5345, B. A. C. . .	48.2	1.6	15.0	27 1.60	1	23.260	0 23.95	82.098	α δ
	Iris		25.5	39.0	27 25.55	3	45.278			h. m. s. ° ′ ″
	5345, B. A. C. . .	48.7	2.0	15.1	33 1.93	1	23.560	0 24.25	82.081	5345, B. A. C. 15 58 53.70 −24 3 12.33
	Iris		26.5	39.1	33 26.18	3	45.561			Iris—5345, B. A. C. Δα Δδ
	5345, B. A. C. . .	26.6	40.3		37 40.07	1	23.780	0 24.10	81.831	h. m. s. m. s. ′ ″
	Iris	51.0	4.1	17.4	38 4.17	3	45.531			Sid. T. 13 41 23.76 + 0 23.69 −20 59.73
	5345, B. A. C. . .	31.8	45.0		41 45.08	1	23.840	0 23.65	81.902	Δρ − .10 − 2.54
	Iris	55.3	8.8	22.1	42 8.73	3	45.662			p − .13 + 3.45
	5345, B. A. C. . .	3.2	16.8		48 16.70	1	24.090	0 23.20	81.922	
	Iris	27.0	39.5	53.2	48 39.90	3	45.932			
	5345, B. A. C. . .	39.7	53.2		52 53.10	1	24.191	0 23.10	81.959	
	Iris	3.1	16.0	29.5	53 16.20	3	46.070			
	5345, B. A. C. . .	21.0	34.2		57 34.35	1	24.272	+ 0 23.15	− 81.883	
	Iris	44.0	57.5	11.0	57 57.50	3	46.075			
ril 29	5254, B. A. C. . .	13.4	27.0	40.5	14 25 26.97	1	31.093	+ 4 0.10	− 61.588	
	Iris		27.1	40.6	29 27.07	3	32.601			
	5254, B. A. C. . .	3.5	17.3	30.2	31 17.00	1	31.213	3 59.47	61.728	
	Iris	3.2	16.2	30.0	35 16.47	3	32.861			
	5254, B. A. C. . .	15.2	28.6	42.1	38 28.63	1	31.150	3 59.00	61.631	
	Iris	14.0	27.9	41.0	42 27.63	3	32.701			
	5254, B. A. C. . .	55.2		22.0	46 8.60	1	31.299	+ 3 59.37	− 61.464	
	Iris	54.6	8.0	21.3	50 7.97	3	32.683			(Continued.)

IRIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
April 29	5254, B. A. C. . .	17.1	30.1	43.0	14 55 30.07	1 31.229	+ 3 58.83	− 61.601	m. s.
	Iris	15.6	29.1	42.0	59 28.90	3 32.750			Corr. Chron. + 1 11.42
	5254, B. A. C. . .	58.2	12.0	25.6	15 7 11.93	1 31.307	3 58.60	61.459	α δ; h. m. s. ° ′ ″
	Iris	57.1	10.5	24.0	11 10.53	3 32.686			5254, B. A. C. 15 45 2.62 −23 31 34.31
	5254, B. A. C. . .	37.2	50.0	3.5	16 50.23	1 31.490	3 57.97	61.256	Iris—5254, B. A. C. Δα Δδ
	Iris	35.1	48.0	1.5	20 48.20	3 32.666			h. m. s. m. s. ′ ″
	5254, B. A. C. . .	53.2	6.7	20.0	26 6.63	1 31.287	3 57.74	61.418	Sid. T. 15 8 8.48 + 3 58.60 − 15 45.77
	Iris	50.7	4.3	18.1	30 4.37	3 32.625			Δρ .00 − 1.25
	5254, B. A. C. . .	8.2	21.4	35.3	37 21.63	1 31.558	3 57.44	61.991	p − .04 + 3.86
	Iris	6.1	19.0	32.1	41 19.07	3 32.469			
	5254, B. A. C. . .	9.3	23.0	36.5	45 22.93	1 31.435	+ 3 57.44	− 61.214	
	Iris	7.1	20.4	33.6	49 20.37	3 32.569			
May 1	5254, B. A. C. . .	19.4	32.7	46.3	13 38 32.80	1 37.241	+ 2 16.20	− 35.687	m. s.
	Iris	35.7	49.2	2.1	40 49.00	2 42.751			Corr. Chron. + 1 14.16
	5254, B. A. C. . .	5.3	18.6	31.9	46 18.60	1 36.980	2 15.83	35.178	α δ
	Iris	21.0	34.2	48.1	48 34.43	2 41.991			h. m. s. ° ′ ″
	5254, B. A. C. . .	22.2	35.3	49.2	52 35.56	1 37.071	2 15.61	35.337	5254, B. A. C. 15 45 2.51 −23 31 36.39
	Iris	38.0	51.3	4.2	54 51.17	2 42.241			
	5254, B. A. C. . .	25.1	38.3	51.3	56 38.23	1 37.219	2 15.80	35.191	Iris—5254, B. A. C. Δα Δδ; h. m. s. m. s. ′ ″
	Iris		53.7	7.5	58 54.03	2 42.243			Sid. T. 14 18 41.42 + 2 14.71 − 8 58.19
	5254, B. A. C. . .	4.2	17.5	31.0	14 1 17.57	1 37.227	2 15.15	35.120	Δρ − .02 − .80
	Iris	19.5	32.5		3 32.72	2 42.180			p − .10 + 3.80
	5254, B. A. C. . .	32.7	46.0	59.5	6 46.07	1 37.425	2 15.90	35.129	
	Iris	47.6	1.3	14.0	9 1.97	2 42.387			
	5254, B. A. C. . .	20.3	33.7	47.2	10 33.73	1 37.498	2 14.84	34.965	
	Iris	35.0	48.7	1.9	12 48.57	2 42.296			
	5254, B. A. C. . .	52.3	5.7	19.2	14 5.73	1 37.578	2 14.07	35.033	
	Iris	6.5	19.7	33.2	16 19.80	2 42.444			
	5254, B. A. C. . .	32.7	46.2	59.1	17 46.00	1 37.670	2 14.50	34.949	
	Iris	46.8	0 7	14.0	20 0.50	2 42.452			
	5254, B. A. C. . .	16.2	29.6	43.0	21 29.60	1 37.750	2 14.33	34.827	
	Iris	30.7	44.1	57.0	23 43.93	2 42.410			
	5254, B. A. C. . .	12.7	25.2	39.1	26 25.66	1 37.778	2 14.21	34.799	
	Iris	26.7	39.7	53.2	28 39.87	2 42.410			
	5254, B. A. C. . .	48.0	0.7	14.3	34 1.00	1 37.721	2 14.40	34.969	
	Iris		15.3	28.6	36 15.40	2 42.523			
	5254, B. A. C. . .	49.3	2.7	16.1	34 2.70	1 37.800	2 13.80	34.785	
	Iris	3.0	16.8	29.7	36 16.50	2 42.418			
	5254, B. A. C. . .	8.2	21.5	35.1	37 21.60	1 37.875	2 13.87	34.756	
	Iris	22.0	35.3	49.1	39 35.47	2 42.464			
	5254, B. A. C. . .	34.4	47.5	1.5	40 47.80	1 37.960	2 13.46	34.753	
	Iris	47.1	1.5	15.2	43 1.26	2 42.546			
	5254, B. A. C. . .	25.1	38.1	51.5	44 38.23	1 38.017	+ 2 13.34	− 34.688	
	Iris	38.1	51.6	5.0	14 46 51.57	2 42.538			

IRIS.

.TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
50.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
9	5220, B. A. C. . .	49.3		16.0	14 13 2.65	2 47.680	+0 7.90	+ 50.887	
	Iris	57.1		24.0	13 10.55	1 26.960			
	5220, B. A. C. . .	16.0	29.1	42.5	24 29.20	3 37.790	0 6.95	51.172	m. s. Corr. Chron. + 1 35.32
	Iris		36.0	49.5	24 36.15	1 46.698			
	5220, B. A. C. . .	39.8	53.1	6.3	26 53.07	3 37.683	0 7.23	51.043	α δ h. m. s. ° ′ ″
	Iris	47.0	0.2	13.7	27 0.30	1 46.720			5220, B. A. C. 15 39 35.55 —23 21 57.15
	5220, B. A. C. . .	3.2	17.0	30.0	29 16.73	3 37.782	0 6.95	51.112	Iris — 5220, B. A. C. Δα Δδ
	Iris		23.7	37.2	29 23.68	1 46.750			h. m. s. m. s. ′ ″
	5220, B. A. C. . .	27.1	39.5	53.5	32 40.03	3 37.678	0 7.13	51.046	Sid. T. 15 10 50.84 + 0 5.34 + 13 13.23
	Iris	34.0	47.0	0.5	32 47.16	1 46.712			Δρ + .01 1.01 p — .03 + 3.93
	5220, B. A. C. . .	51.9	5.7	18.7	35 5.43	3 37.712	0 6.85	51.272	
	Iris		12.4	25.7	35 12.28	1 46.520			
	5220, B. A. C. . .	32.2	44.7	58.3	37 45.06	3 37.765	0 7.14	51.257	
	Iris	38.9	52.3	5.4	37 52.20	1 46.588			
	5220, B. A. C. . .	56.1	9.2	22.2	41 9.16	3 37.782	0 6.44	51.373	
	Iris	2.0	15.7	29.1	41 15.60	1 46.489			
	5220, B. A. C. . .	2.3	15.3	29.2	43 15.60	3 37.722	0 6.16	51.252	
	Iris	8.3	22.0	35.0	43 21.76	1 46.550			
	5220, B. A. C. . .	33.1	46.4	0.3	45 46.60	3 37.819	0 6.40	51.403	
	Iris	39.5	53.0	6.5	45 53.00	1 46.496			
	5220, B. A. C. . .	41.8	55.1	8.0	15 42 54.80	3 37.910	0 3.90	52.160	
	Iris			12.1	42 58.70	1 45.830			
	5220, B. A. C. . .	22.7		49.7	45 36.20	3 37.882	0 3.58	52.068	
	Iris		40.1		45 39.78	1 45.894			
	5220, B. A. C. . .	12.0	25.3	39.1	16 1 25.46	3 36.012	0 3.04	52.163	
	Iris	15.0		42.0	1 28.50	1 43.929			
	5220, B. A. C. . .	49.0	2.5	15.0	5 2.16	3 36.110	0 2.84	52.180	
	Iris	51.6	5.1	18.3	5 5.00	1 44.010			
	5220, B. A. C. . .	19.7	33.1	46.4	7 33.06	3 36.060	0 2.70	52.301	
	Iris	22.1	36.0	49.2	7 35.76	1 43.839			
	5220, B. A. C. . .	24.3	38.0		9 37.68	3 36.097	0 2.65	52.348	
	Iris	27.1	40.7		9 40.33	1 43.819			
	5220, B. A. C. . .	7.2	20.3		14 20.08	3 35.960	+ 0 3.00	+ 52.302	
	Iris	10.5	23.0		14 23.08	1 43.738			
y 12	A. Z., 387, 6 . .	38.3	51.9	5.2	13 45 51.80	3 40.601	+ 0 5.66	+ 24.123	
	Iris	44.1	57.6	10.7	45 57.66	2 46.390			
	A. Z., 387, 6 . .	37.6	51.3	4.0	47 50.96	3 40.711	0 5.40	24.294	
	Iris	43.1	56.5	9.5	47 56.36	2 46.329			
	A. Z., 387, 6 . .	18.0	31.3	44.3	49 31.20	3 40.779	0 5.23	24.372	
	Iris	23.4	36.7	49.2	49 36.43	2 46.319			
	A. Z., 337, 6 . .	54.2	7.5	21.0	52 7.56	3 40.845	0 5.50	24.347	
	Iris	59.7	13.2	26.3	52 13.06	2 46.410			
	A. Z., 387, 6 . .	47.5	0.7	14.3	54 0.85	3 40.880	0 4.83	24.343	
	Iris	52.3	5.7	19.2	54 5.73	2 46.449			
	A. Z., 387, 6 . .	2.3	15.7	29.2	13 56 15.73	3 40.937	+ 0 5.10	+ 24.418	
	Iris	7.5	21.0	34.0	56 20.83	2 46.431			(Continued.)

IRIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.		Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
May 21	Iris - - - - - -	27. 2	40. 3		15 41 40. 26	1	46. 109			
	(° 5) , - - - - -	15. 7	29. 2	42. 0	42 28. 96	3	35. 430	— 0 48. 70	+ 49. 401	
	Iris - - - - - -	47. 0	0. 2		46 0. 36	1	46. 036			
	(° 5) - - - - - -	34. 9	48. 5	2. 0	46 48. 46	3	35. 529	0 48. 10	49. 573	
	Iris - - - - - -	13. 2	26. 2	39. 8	50 26. 40	1	46. 000			
	(° 5) - - - - - -	2. 1	15. 3	28. 5	51 15. 30	3	35. 400	0 48. 90	49. 480	
	Iris - - - - - -	37. 2	50. 2	3. 5	54 50. 30	1	45. 812			
	(° 5) - - - - - -	26. 1	39. 7	53. 0	55 39. 60	3	35. 351	0 49. 30	49. 619	
	Iris - - - - - -	41. 0	54. 2	7. 0	16 1 54. 06	1	45. 622			
	(° 5) - - - - - -	30. 5	43. 2	57. 2	2 43. 63	3	35. 192	— 0 49, 57	+ 49. 650	
May 23	Iris - - - - - -	15. 2	28. 1	41. 0	15 57 28. 10	3	26. 782			
	(° 6) - - - - - -	42. 7	56. 1	9. 2	59 56. 00	3	44. 538	— 2 27. 90	+ 17. 756	m. s.
	Iris - - - - - -	19. 1	32. 1	45. 2	16 1 32. 13	3	26. 615			Corr. Chron. — 1 12. 83
	(° 6) - - - - - -	46. 5	0. 1	13. 4	4 0. 00	3	44. 407	2 27. 87	17. 792	α δ
	Iris - - - - - -	18. 2	31. 5	44. 1	7 31. 27	3	26. 670			h. m. s. ° ′ ″
	(° 6) - - - - - -	47. 0	0. 0	13. 1	10 0. 03	3	44. 415	2 28. 76	17. 745	(° 6) 16 28 7. 02 —22 6 5. 95
	Iris - - - - - -	27. 0	40. 3	53. 6	11 40. 30	3	26. 541			Iris—(° 6) Δ α Δ δ
	(° 6) - - - - - -	55. 3	9. 0	22. 1	14 8. 80	3	44. 410	2 28. 50	17. 869	h. m. s. m. s. ′ ″
	Iris - - - - - -	1. 3	14. 6	28. 0	16 14. 63	3	26. 380			Sid. T. 16 7 59. 82 — 2 28. 43 + 4 34. 50
	(° 6) - - - - - -	30. 2	43. 0	56. 0	18 43. 06	3	44. 370	2 28. 43	17. 990	Δ ρ . 00 + . 32
	Iris - - - - - -	36. 3	49. 7	2. 7	20 49. 56	3	26. 142			p + . 04 + 3. 60
	(° 6) - - - - - -	5. 3	18. 7	32. 0	23 18. 66	3	44. 150	— 2 29. 10	+ 18. 008	
May 26	Iris - - - - - -	29. 4	42. 5	55. 1	15 1 42. 33	3	42. 678			
	A. Z., 209, 54 - -	10. 3	23. 2	36. 3	2 23. 26	1	27. 800	— 0 40. 93	— 74. 958	
	Iris - - - - - -	29. 3	42. 3	56. 0	3 42. 53	3	42. 722			
	A. Z., 209, 54 - -	10. 6	23. 2	36. 8	4 23. 53	1	27. 772	0 41. 00	75. 030	
	Iris - - - - - -	27. 5	41. 0	54. 0	5 40. 83	3	42. 609			
	A. Z , 209, 54 - -	9. 0	22. 0	35. 1	6 22. 03	1	27. 771	0 41. 20	74. 918	m. s.
	Iris - - - - - -	30. 5	43. 5	57. 0	8 43. 66	3	42. 693			Corr. Chron. — 1 8. 11
	A. Z., 209, 54 - -	11. 7	24. 3	38. 3	9 24. 26	1	27. 821	0 40. 60	74. 952	α δ
	Iris - - - - - -	27. 1	40. 0	53. 1	10 40. 06	3	42. 603			h. m. s ° ′ ″
	A. Z , 209, 54 - -	8. 3	21. 0	34. 7	11 21. 33	1	27. 834	0 41. 27	74. 849	A. Z., 209, 54, 15 23 28. 68 —21 27 6. 08
	Iris - - - - - -	14. 8	28. 0	41. 3	12 28. 03	3	42. 729			Iris—A. Z., 209, 54, Δ α Δ δ
	A. Z., 209, 54 - -	55. 5	9. 0	22. 1	13 8. 86	1	27. 921	0 40. 83	74. 888	h. m. s. m. s. ′ ″
	Iris - - - - - -	50. 3	4. 1	17. 0	15 3. 80	3	42. 643			Sid. T. 15 37 10. 71 —0 42. 37 —19 4. 60
	A. Z., 209, 54 - -	32. 2	45. 7	59. 0	15 45. 62	1	27. 950	0 41. 80	74. 773	Δ ρ . 00 — 1. 31
	Iris - - - - - -	15. 4	29. 2	42. 0	17 28. 86	3	42. 602			p + . 02 + 3. 90
	A. Z , 209, 54 - -	57. 2	9. 7	23. 1	18 10. 00	1	27. 960	0 41. 14	74. 722	
	Iris - - - - - -	24. 1	37. 2	50. 7	19 37. 33	3	42. 695			
	A. Z , 209, 54 - -	6. 0	19. 1	32. 5	20 19. 20	1	27. 995	0 41. 87	74. 780	
	Iris - - - - - -	20. 7	33. 1	46. 6	21 33. 46	3	42. 729			
	A. Z., 209, 54 - -	1. 3	15. 3	29. 1	22 15. 57	1	28. 050	0 42. 11	74. 759	
	Iris - - - - - -	57. 3	10. 6	24. 1	24 10. 66	3	42. 651			
	A. Z., 209, 54 - -	39. 7	52. 7	5. 9	24 52. 77	1	28. 137	0 42. 11	74. 594	
	Iris - - - - - -	13. 0	26. 0	39. 0	26 26. 00	3	42. 767			(Continued.)
	A. Z , 209, 54 - -	55. 3	8. 0	21. 0	27 8. 10	1	28. 189	— 0 42. 10	— 74. 658	

IRIS.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.	RESULTS.
50.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
26	Iris	27.3	40.3	54.0	15 28 40.52	3	42.727			
	A. Z., 209, 54	9.2	22.6	36.0	29 22.60	1	28.232	— 0 42.08	— 74.575	
	Iris	58.3		24.7	58 11.50	3	44.486			
	A. Z., 209, 54	41.5	54.3	7.5	58 54.43	1	30.376	0 42.93	74.190	
	Iris	12.3	25.1	38.7	16 0 25.37	3	44.302			
	A. Z., 209, 54	55.2	8.7	22.1	1 8.66	1	30.201	0 43.29	74.181	
	Iris	31.2	44.3	57.1	2 44.20	3	44.045			
	A. Z, 209, 54		27.7	41.0	3 27.85	1	30.010	0 43.65	74.115	
	Iris	38.7	51.8	0.5	5 51.83	3	44.036			
	A. Z., 209, 54	22.1	35.0	48.3	5 35.13	1	29.995	0 43.30	74.121	
	Iris	48.5	2.3	14.7	7 1.83	3	43.981			
	A. Z., 209, 54	32.3	45.0	58.0	7 45.10	1	29.943	0 43.27	74.118	
	Iris	14.0	27.3	40.7	9 27.33	3	43.860			
	A. Z., 209, 54		11.2	24.6	10 11.23	1	29.923	0 43.90	74.017	
	Iris	9.2	22.7	35.9	12 22.60	3	43.622			
	A. Z., 209, 54	53.1	6.3	19.6	13 6.33	1	29.709	0 43.73	73.993	
	Iris	19.4	32.1	45.5	14 32.33	3	43.577			
	A. Z., 209, 54	3.2	16.0	29.1	15 16.10	1	29.679	0 43.77	73.978	
	Iris	16.3	29.1	42.5	16 29.30	3	43.499			
	A. Z., 209, 54	0.5	13.2	26.1	17 13.26	1	29.631	0 43.96	73.948	
	Iris	17.9	31.0	43.9	18 30.93	3	43.409			
	A. Z., 209, 54	1.7	14.3	28.1	19 14.70	1	29.713	— 0 43.77	— 73.776	
27	Iris	55.8	9.1	22.0	15 23 8.96	3	39.498			
	A. Z., 209, 64	35.2	48.0	1.3	24 48.16	1	45.107	— 1 39.20	— 54.471	
	Iris	24.1	37.3	50.2	26 37.20	3	39.421			
	A. Z., 209, 64	3.7	16.9	29.7	28 16.76	1	45.096	1 39.56	54.405	
	Iris	10.0	23.0	36.0	29 23.00	3	39.408			m. s.
	A. Z., 209, 64	49.4	2.5	15.7	31 2.53	1	45.094	1 39.53	54.394	Corr. Chron. — 1 6.94
	Iris	57.7	11.0	24.0	32 10.90	3	39.327			α δ h. m. s. ° ′ ″
	A. Z., 209, 64	37.3	50.6	3.1	33 50.33	1	45.047	1 39.43	54.360	A. Z., 209, 54 15 23 28.68 — 21 27 6.11
	Iris	20.3	33.0	47.0	35 33.43	3	39.254			Iris—A. Z, 209, 54, Δα Δδ
	A. Z., 209, 64	0.2	13.2	26.7	37 13.37	1	45.101	1 39.94	54.233	h. m. s. m s ′ ″
	Iris	17.2	30.1	43.0	38 30.10	3	39.252			Sid. T. 15 42 6.50 — 1 40.02 —13 52.90
	A. Z., 209, 64	57.4	10.2	23.2	40 10.27	1	45.018	1 40.17	54.314	Δρ .00 — .95 p + .04 + 3.91
	Iris	31.3	44.5	57.7	41 44.50	3	39.189			
	A. Z., 209, 64	10.9	24.1	37.2	43 24.06	1	44.980	1 39.56	54.289	
	Iris	29.7	43.1	56.0	44 42.93	3	39.028			
	A. Z., 209, 64	9.7	23.1	35.9	46 22.90	1	44.978	1 39.97	54.130	
	Iris	17.0	30.0	43.2	47 30.06	3	38.992			
	A. Z., 209, 64	57.1	10.2	23.4	49 10.23	1	44.922	1 40.17	54.150	
	Iris	7.4	20.9	33.9	50 20.73	3	38.933			
	A. Z, 209, 64	48.1	1.3	14.3	52 1.23	1	44.935	1 40.50	54.078	
	Iris	46.0	59.5	12.9	53 59.46	3	38.933			
	A. Z., 209, 64	26.9	40.1	53.2	55 40.06	1	44.970	1 40.60	54.043	
	Iris	34.2	47.5	0.7	56 47.80	3	38.808			
	A. Z., 209, 64	14.7	28.1	41.0	58 27.93	1	44.920	— 1 40.13	— 53.968	(Continued.)

IRIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
May 27	Iris - - - - - -	26.3	39.7	52.7	15 59 39.56	3 38.723			
	A. Z., 209, 64 - -	7.2	20.4	33.7	16 1 20.43	1 44.840	— 1 40.87	— 53.963	
	Iris - - - - - -	46.3	59.5	12.7	4 59.50	3 38.592			
	A. Z., 209, 64 - -	27.3	40.2	53.0	6 40.17	1 44.793	— 1 40.67	— 53.879	
June 3	Iris - - - - - -	15.8	29.0	42.0	35 28.93	3 29.920			
	A. Z., 209, 48 - -	12.7	25.4	38.5	37 25.53	1 36.595	— 1 56.60	— 53.405	
	Iris - - - - - -	21.3		47.5	38 34.40	3 30.120			
	A. Z., 209, 48 - -	18.3	30.7	44.0	40 31.00	1 36.623	1 56.60	53.577	
	Iris - - - - - -	31.0	43.8	58.0	41 44.26	3 29.951			
	A. Z., 209, 48 - -	28.3		54.3	43 41.30	1 36.551	1 57.04	53.480	
	Iris - - - - - -	41.2	54.4	7.5	47 54.36	3 30.032			Corr. Chron. s. —0 57.93
	A. Z, 209, 48 - -	37.3	50.7	3.8	49 50.60	1 36.899	1 56.24	53.213	α δ
	Iris - - - - - -	55.3	8.2	21.2	50 8.23	3 29.820			h. m. s. ° ′ ″
	A. Z, 209, 48 - -	52.0	5.0	18.2	52 5.06	1 36.539	1 56.83	53.361	A. Z., 209, 48, 15 17 27.13 —20 50 56.99
	Iris - - - - - -	58.7	11.3	24.5	53 11.50	3 29.901			Iris—A. Z., 209, 48, Δ α Δ δ
	A. Z., 209, 48 - -	55.5	8.7	21.7	55 8.63	1 36.520	1 57.13	53.461	h. m. s. m. s. ′ ″ Sid. T. 16 50 42.92 — 1 57.06 —13 39.60
	Iris - - - - - -	46.1	59.0	12.0	57 59.03	3 29.650			Δρ — .01 — .91
	A. Z., 209, 48 - -	43.5	56.2	9.7	59 56.46	1 36.619	1 57.43	53.111	p + .04 + 3.86
	Iris - - - - - -	3.5	16.1	29.5	17 0 16.36	3 29.829			
	A. Z., 209, 48 - -	59.7	13.4	26.2	2 13.10	1 36.555	1 57.74	53.354	
	Iris - - - - - -	7.7	20.8	34.3	3 20.93	3 29.682			
	A. Z., 209, 48 - -	5.5	18.3	31.5	5 18.4[illegible]	1 36.550	1 57.50	53.212	
	Iris - - - - - -	57.3	10.6	23.7	8 10.53	3 29.590			
	A. Z., 209, 48 - -	55.1	7.9	21.0	10 8.00	1 36.579	— 1 57.47	— 53.091	
June 4	Iris - - - - - -	14.7		41.0	16 27 27.85	2 43.204			
	A. Z., 209, 48 - -	1.0	14.2	27.0	30 14.06	1 39.452	— 2 46.21	— 33.919	
	Iris - - - - - -	9.2	22.0	35.2	33 22.13	2 43.103			Corr. Chron. s. —0 56.38
	A. Z., 209, 48 - -	55.2	8.5	21.2	36 8.30	1 39.370	2 46.17	33.900	α δ
	Iris - - - - - -	2.7	15.8	29.0	37 15.83	2 42.995			h. m. s. ° ′ ″
	A. Z., 209, 48 - -	49.2	2.1	15.3	40 2.20	1 39.430	2 46.37	33.732	A. Z., 209, 48, 15 7 27.13 —20 50 57.01
	Iris - - - - - -	34.1	47.0	0.0	41 47.03	2 42.900			Iris—A. Z., 209, 48, Δ α Δ δ
	A. Z, 209, 48 - -	21.2	34.1	47.2	44 34.16	1 39.355	2 47.13	33.712	h. m. s. m. s. ′ ″ Sid. T. 16 38 26.69 — 2 46.57 — 8 38.16
	Iris - - - - - -	51.5	4.7	17.5	46 4.56	2 42.816			Δρ — .01 — .63
	A. Z., 209, 48 - -	38.2	51.7	4.2	48 51.36	1 39.356	2 46.80	33.627	p + .08 + 3.76
	Iris - - - - - -	8.2	20.7	34.1	50 21.00	2 42.520			
	A. Z, 209, 48 - -	54.3	7.7	21.2	53 7.73	1 39.302	— 2 46.73	— 33.385	
June 11	Iris - - - - - -	49.7	3.2	16.2	15 54 3.03	2 39.251			Corr. Chron. s. —0 47.58
	A Z., 208, 52 - -		46.5	59.5	54 46.33	3 39.242	— 0 43.30	+ 29.903	
	Iris - - - - - -	57.1	10.7	23.1	59 10.30	2 39.037			α δ h. m. s. ° ′ ″
	A. Z., 208, 52 - -	41.5	54.3	7.2	59 54.33	3 39.319	0 44.03	30.194	A. Z., 208, 52, 15 10 7.34 —20 33 7.49
	Iris - - - - - -	30.5	44.1	57.1	16 0 43.90	2 39.018			Iris—A. Z., 208, 52, Δ α Δ δ
	A. Z, 208, 52 - -	15.2	28.3	41.3	1 28.26	3 39.291	0 44.36	30.185	h. m. s. m. s. ′ ″ Sid. T. 16 4 56.81 — 0 44.36 + 7 43.76
	Iris - - - - - -	17.5	30.4	42.8	2 30.26	2 39.078			Δρ + .01 .51
	A. Z., 208, 52 - -	1.0	14.7	28.1	3 14.60	3 39.300	— 0 44.34	+ 30.134	p + .06 + 3.70

(Continued.)

IRIS.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.	RESULTS.
850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
ıe 11	Iris - - - - - -	48.2	1.3	14.1	16 5 1.20	2	39.042			
	A. Z., 208, 52 - -	32.4	45.7	58.7	5 45.60	3	39.240	— 0 44.40	+ 30.110	
	Iris - - - - - -	17.3	30.0	42.9	6 30.06	2	39.003			
	A Z., 208, 52 - -	1.4	14.7	27.9	7 14.67	3	39.281	0 44.61	30.190	
	Iris - - - - - -	41.2	54.1	7.0	7 54.10	2	38.853			
	A. Z , 208, 52 - -	25.6	38.3	51.7	8 38.53	3	39.283	0 44.43	30.342	
	Iris - - - - - -	7.7	19.3	32.7	9 19.90	2	38.910			
	A. Z., 208, 52 - -	51.7	4.7	18.0	10 4.93	3	39.278	0 45.03	30.280	
	Iris - - - - - -	45.5	58.3	11.3	10 58.36	2	38.968			
	A. Z., 208, 52 - -	29.7	43.1	56.2	11 43.00	3	39.254	0 44.64	30.198	
	Iris - - - - - -	17.3	30.7	43.1	12 30.36	2	39.050			
	A. Z., 208, 52 - -	1.5	15.1	27.4	13 14.66	3	39.191	0 44.30	30.053	
	Iris - - - - - -	54.1	7.1		14 6.88	2	38.759			
	A. Z., 208, 52 - -	38.4	51.9	5.6	14 51 43	3	39.168	— 0 44.55	+ 30.321	
ne 12	Iris - - - - - -	12.1	25.0	38.0	16 30 25.03	1	53.480			
	A. Z., 208, 52 - -	37.0	50.0	3.0	31 50.00	3	41.965	— 1 24.97	+ 48.565	
	Iris - - - - - -	1.0	14.2	27.3	39 14.16	1	53.065			
	A. Z., 208, 52 - -	27.1	40.2	53.1	40 40.13	3	42.027	1 25.97	49.042	
	Iris - - - - - -	31.6	44.2	58.1	41 44.63	1	53.051			
	A. Z., 208, 52 - -	57.2	10.3	23.7	43 10.40	3	42.077	1 25.77	49.106	
	Iris - - - - - -	55.3	8.5	21.9	44 8.56	1	52.890			
	A. Z , 208, 52 - -	21.9	34.8	47.9	45 34.86	3	41.962	1 26.30	49.152	
	Iris - - - - - -	55.2	8.7	22.0	47 8.63	1	52.892			
	A. Z., 208, 52 - -	21.9	34.7	48.1	48 34.90	3	41.922	1 26.27	49.110	
	Iris - - - - - -	55.0	8.3	21.7	51 8.33	1	53.080			
	A. Z., 208, 52 - -	22.0	35.0	49.2	52 35.40	3	42.130	1 27.07	49.130	
	Iris - - - - - -	31.0	43.8	56.9	53 43.57	1	53.020			
	A. Z., 208, 52 - -	57.2	10.7	24.4	55 10.77	3	42.010	1 27.20	49.070	
	Iris - - - - - -	20.2	33.2	46.5	56 33.30	1	52.978			
	A. Z., 208, 52 - -	46.4	59.7	13.0	57 59.70	3	42.080	1 26.40	49.182	
	Iris - - - - - -	53.0	6.5	19.3	59 6.26	1	52.862			
	A. Z , 208, 52 - -	20.2	33.3	46.5	17 0 33.33	3	42.042	1 27.07	49.260	
	Iris - - - - - -	48.1	0.9	14.3	2 1.10	1	52.705			
	A. Z., 208, 52 - -	15.0	28.0	40.9	3 27.96	3	41.950	1 26.86	49.325	
	Iris - - - - - -	38.5	51.3	4.5	4 51.43	1	52.908			
	A. Z., 208, 52 - -	4.7	18.2	31.3	6 18.06	3	42.842	— 1 26.63	+ 50.014	
ıne 13	Iris - - - - - -	35.1		1.5	16 45 48.20	1	41.773			
	A. Z., 208, 52 - -	40.2	53.3	6.2	47 53.23	3	48.595	— 2 5.03	+ 66.902	
	Iris - - - - - -	10.2		36.2	49 23.20	1	41.796			
	A. Z., 208, 52 - -	15.1	28.3	41.5	51 28.30	3	48.680	2 5.10	66.964	
	Iris - - - - - -	42.0	55.3	8.0	52 55.10	1	41.729			
	A. Z., 208, 52 - -	47.2	0.3	13.9	55 0.46	3	48.522	2 5.36	66.875	
	Iris - - - - - -	6.2	19.3	32.1	16 57 19.20	1	41.441			
	A. Z., 208, 52 - -	12.5	25.1	38.5	59 25.36	3	48.380	— 2 6.16	+ 67.019	

RESULTS, June 12:

Corr. Chron.		s. — 46.41	
		α	δ
		h. m. s.	° ′ ″
A. Z., 208, 52,		15 10 7.35	—20 33 7.50
Iris—A. Z , 208, 52,		Δα	Δδ
	h. m. s.	m. s.	′ ″
Sid. T.	16 54 14.04	— 1 26.41	+12 35.82
	Δρ	+ .03	.97
	p	+ .11	+ 3.61

RESULTS, June 13:

Corr. Chron.		s. — 43.44	
		α	δ
		h. m. s.	° ′ ″
A. Z., 208, 52,		15 10 7.35	+ 20 33 7.50
Iris—A. Z., 208, 52,		Δα	Δδ
	h. m. s.	m. s.	′ ″
Sid. T.	16 54 45.95	— 2 5.58	+17 9.67
	Δρ	+ .04	1.30
	p	+ .11	+ 3.62

(Continued.)

IRIS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
June 13	A. Z., 208, 46	15.0	28.0		17 0 28.00	2	37.879			
	Iris	5.0		31.5	1 18.25	1	41.587			
	A. Z., 208, 52	11.3	24.7	37.1	3 24.33	3	48.360	— 2 6.08	+ 66.853	
	A. Z., 208, 46	41.7	54.1	7.5	4 54.43	2	37.860			
	Iris	31.3		57.5	5 44.40	1	41.215			
	A. Z., 208, 52	37.2	50.2	3.1	7 50.16	3	48.491	— 2 5.76	+ 67.356	
June 24	Iris	36.2	49.1	0.2	17 45 49.10	3	38.537			
	4995, B. A. C.	55.0	8.1	21.0	47 8.03	1	31.080	— 1 18.93	— 67.537	Corr. Chron. — 25.86 s.
	Iris	39.0	52.1	5.0	48 52.03	3	38.910			
	4995, B. A. C.	58.2	11.3	24.2	50 11.23	1	30.983	1 19.20	68.007	4995, B. A. C., α 15 h. 3 m. 42.79 s.; δ —19° 13′ 15.31″
	Iris	3.7	16.5	29.5	54 16.56	3	38.770			
	4995, B. A. C.	22.4	35.2	48.2	55 35.26	1	30.691	1 18.70	68.159	Iris—4995, B. A. C.,
	Iris	44.1	57.1	9.5	57 56.90	3	38.483			
	4995, B. A. C.	3.3	15.7	29.1	59 16.03	1	30.615	1 19.13	67.948	Sid. T. 17 h. 56 m. 31.45 s.; Δα — 1 m. 19.08 s.; Δδ —17′ 22.30″
	Iris	48.5	2.0	15.0	18 1 1.83	3	38.081			Δρ — .09 — 1.87
	4995, B. A. C.	8.1	21.2	34.1	2 21.13	1	30.410	1 19.30	67.751	p + .16 + 3.24
	Iris	33.9	46.2	59.5	3 46.53	2	37.800			
	4995, B. A. C.	52.5	5.7	19.0	5 5.73	1	30.337	1 19.20	67.543	
	Iris	45.2	58.2	11.2	6 58.20	3	37.805			
	4995, B. A. C.	4.2	17.6	30.2	8 17.33	1	30.121	— 1 19.13	— 67.764	
June 25	Iris	6.2	19.0	31.7	16 21 18.96	3	28.760			
	4995, B. A. C.	45.5	58.2	11.0	22 58.23	1	33.045	— 1 39.27	— 55.795	Corr. Chron. — 24.27 s.
	Iris	53.7	6.2	19.0	24 6.30	3	28.580			
	4995, B. A. C.	32.2	46.1	59.7	25 46.00	1	33.036	1 39.70	55.624	4995, B. A. C. α 15 h. 3 m. 42.79 s.; δ —19° 13′ 15.30″
	Iris	36.0		2.0	27 49.00	3	28.600			
	4995, B. A. C.	15.2	28.4	41.3	29 28.30	1	33.937	1 39.30	54.743	Iris—4995, B. A. C.
	Iris	20.7	33.7	46.2	30 33.53	3	28.555			Sid. T. 16 h. 28 m. 39.62 s.; Δα —1 m. 39.53 s.; Δδ —14 5.95″
	4995, B. A. C.	0.2	13.3	26.1	32 13.20	1	33.958	1 39.67	54.677	Δρ — .02 — .94
	Iris	13.6	26.1	39.1	33 26.26	3	28.570			p + .08 + 3.45
	4995, B. A. C.	52.7	5.7	18.5	35 5.63	1	33.869	1 39.37	54.781	
	Iris	56.3	9.3	22.2	37 9.27	3	28.520			
	4995, B. A. C.	36.3	49.1	2.0	38 49.13	1	33.975	— 1 39.86	— 54.625	
Aug. 12	A. Z., 303, 47	30.3		56.1	18 13 43.20	1	45.901	+ 1 54.57	— 33.543	
	Iris	25.0	38.0	50.0	15 37.77	2	49.277			Corr. Chron. + 1 m. 31.62 s.
	A. Z., 303, 47	45.7	58.0	11.5	17 58.40	1	45.608	1 54.60	33.841	
	Iris	10.0	53.0	6.0	19 53.00	2	49.282			
	A. Z., 303, 47	52.9	6.0	18.5	20 5.80	1	45.471	1 54.73	33.778	A. Z, 303, 47, α 15 h. 10 m. 56.03 s.; δ —18° 37′ 10.13″
	Iris	47.7	0.7	13.2	22 0.53	2	49.082			Iris—A. Z, 303, 47,
	A. Z., 303, 47	44.7	56.9	9.7	24 57.10	1	45.418	1 54.93	33.761	
	Iris	39.1	52.0	5.0	26 52.03	2	49.012			Sid. T. 18 h 26 m. 17.97 s.; Δα + 1 m. 54.99 s.; Δδ — 8′ 50.43″
	A. Z, 303, 47	49.7	2.1	15.3	28 2.37	1	45.540	1 55.23	33.605	Δρ .06 — 1.13
	Iris	44.3	57.5	11.0	29 57.60	2	48.978			p + .13 + 2.49
	A. Z., 303, 47	7.5	20.0	33.4	32 20.30	1	45.140	+ 1 55.67	— 33.834	
	Iris	2.9	16.0	29.0	34 15.97	2	48.807			

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
May 20	Hygea	58.0	11.0	23.0	17 50 10.70	2	31.219			m. s.
	(° 7)		1.5	15.0	51 2.45	2	28.170	— 0 51.75	— 3.049	Corr. Chron. — 1 20.16
	Hygea	49.0	2.0	15.0	58 2.00	2	31.372			α δ
	(° 7)	41.0		7.5	58 54.25	2	28.201	0 52.25	3.171	h. m. s. ° ′ ″
	Hygea	6.5	19.3	34.0	18 10 19.93	2	31.432			(° 7) 19 45 43.12 —22 7 28.70
	(° 7)	59.0		25.0	11 12.00	2	28.471	0 52.07	2.961	Hygea—(° 7) Δα Δδ
	Hygea	33.0	45.0	59.0	19 45.67	2	31.565			h. m. s. m. s. ′ ″
	(° 7)	25.0	37.5	51.0	20 37.83	2	28.519	0 52.16	3.046	Sid. T. 18 16 49.18 — 0 52.10 — 0 44.89
	Hygea	49.5	2.3	15.3	33 2 37	3	35.000			Δρ .00 — .06
	(° 7)		54.2	7.5	33 54.42	3	32.233	0 52.05	2.767	p — .08 + 2.29
	Hygea	0.0	13.5	26.7	36 13.40	3	34.869			
	(° 7)	52.0	5.0	18.2	37 5.07	3	32.210	0 51.67	2.659	
	Hygea	18.2	31.7	44.0	39 31.30	3	35.090			
	(° 7)	10.2	23.0	36.0	40 23.07	3	32.297	— 0 51.77	— 2.793	
May 21	Hygea	[illegible]0.7	44.3	57.1	18 6 44.03	1	53.139			m s.
	(° 7)	[illegible]4.0	37.5	50.3	7 37.27	1	53.089	— 0 53.24	— 0.050	Corr. Chron. — 1 15.89
	Hygea	45.7	58.4	11.5	13 58.53	1	53.170			α δ
	(° 7)	39.2	51.6	5.1	14 51.97	1	53.195	0 53.44	+ 0.025	h. m. s. ° ′ ″
	Hygea	24.3		51.2	21 37.75	1	53.310			(° 7) 19 45 43.15 —22 7 28.54
	(° 7)	17.7	31.0	44.2	22 30.97	1	53.222	0 53.22	— 0.088	Hygea—(° 7) Δα Δδ
	Hygea	51.1	4.8	18.2	29 4.70	1	53.319			h. m. s. m. s. ′ ″
	(° 7)	44.7	58.2	11.5	29 58.13	1	53.398	0 53.43	+ 0.079	Sid. T. 18 20 17.09 — 0 53.41 — 0 1.58
	Hygea	16.3	30.2	43.1	36 29.87	1	53.360			Δρ .00 .00
	(° 7)	10.3	23.5	37.0	37 23.60	1	53.291	— 0 53.73	— 0.069	p — .08 + 2.30
May 26	Hygea	44.1	57.0	10.2	16 42 57.10	1	34.375			
	(° 7)	7.0	20.0	33.2	44 20.07	1	45.871	— 1 22.97	+ 11.496	
	Hygea	53.1	6.8	19.3	48 6.40	1	34.769			
	(° 7)	16.2	29.2	43.0	49 29.47	1	46.381	1 23.07	11.612	
	Hygea	39.6	52.0	5.3	53 52.30	1	35.221			m. s.
	(° 7)	2.3	15.6	28.7	55 15.53	1	46.605	1 23.23	11.384	Corr. Chron. — 1 7.14
	Hygea	42.5	56.0	9.5	58 56.00	1	35.349			α δ h. m. s. ° ′ ″
	(° 7)	5.9	19.1	32.0	17 0 19.00	1	46.870	1 23.00	11.521	(° 7) 19 45 43.28 —22 7 27.73
	Hygea	17.7	31.0	44.0	3 30.90	1	35.589			
	(° 7)	41.0	54.2	7.2	4 54.13	1	47.010	1 23.20	11.421	Hygea—(° 7) Δα Δδ
	Hygea	36.3	50.0	3.6	7 49.97	1	35.869			h. m. s. m. s. ′ ″ Sid. T. 17 3 56.81 — 1 23.22 + 2 56.60
	(° 7)	0.3	13.5	26.3	9 13.37	1	47.428	1 23.40	11.559	Δρ + .02 .36
	Hygea	5.2	18.3	31.5	12 18.33	1	36.032			p — .14 + 3.33
	(° 7)	28.5	41.2	55.0	13 41.57	1	47.509	1 23.24	11.477	
	Hygea	21.3	34.1	48.0	17 34.47	1	36.240			
	(° 7)	44.2	57.7	11.0	18 57.63	1	47.502	1 23.16	11.262	
	Hygea	23.2	36.7	49.7	21 36.53	1	36.287			
	(° 7)	46.6	0.1	13.3	23 0.00	1	47.888	1 23.47	11.601	
	Hygea	24.3	37.5	50.7	25 37.50	1	36.331			
	(° 7)	47.6	1.3	14.0	27 0.97	1	47.899	— 1 23.47	+ 11.568	

HYGEA.

[D]ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
[1]850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
[. . .]r 27	Hygea	37.5	51.0		16 41 51.00	1	44.535		
	(° 7)	12.0		38.2	43 25.10	2	27.770	— 1 34.10	+ 13.402
	Hygea	28.3	41.1	54.5	46 41.30	1	44.949		
	(° 7)	1.5	15.0	28.2	48 14.90	2	27.921	1 33.60	13.139
	Hygea	22.1	35.3	48.0	51 35.13	1	45.160		
	(° 7)	56.1	8.7	22.0	53 8.93	2	28.287	1 33.80	13.294
	Hygea	5.2		32.5	58 18.85	1	45.837		
	(° 7)	39.5	53.1	6.5	59 53.03	2	28.810	1 34.18	13.140
	Hygea	6.8	20.0	33.2	17 3 20.00	1	45.819		
	(° 7)		53.5	6.0	4 53.15	2	28.870	1 33.15	13.218
	Hygea	21.5	34.7	47.0	8 34.40	1	46.038		
	(° 7)	55.1	8.0	21.0	10 8.03	2	29.302	1 33.63	13.431
	Hygea	37.2	50.2	3.5	14 50.30	1	45.260		
	(° 7)	11.0	24.0	37.0	16 24.00	2	29.370	1 33.70	13.277
	Hygea	29.0	42.0	55.2	20 42.07	1	46.592		
	(° 7)	2.5	16.0	29.0	22 15.83	2	29.742	— 1 33.76	+ 13.317
[Ju]ne 11	37507, Lalande . .	52.1	6.0	19.3	16 56 5.80	1	41.647	+ 1 3.10	— 38.640
	Hygea		9.5	22.0	57 8.90	2	50.120		
	37507, Lalande . .	31.3	44.3	57.1	17 5 44.23	1	41.812	1 2.84	38.487
	Hygea	34.1	47.1	0.0	6 47.07	2	50.132		
	37507, Lalande . .	22.1	35.1	48.1	13 35.10	1	42.187	1 2.73	38.532
	Hygea	25.0	37.5	51.0	14 37.83	2	50.552		
	37507, Lalande . .	9.1	22.5	35.5	16 22.37	1	42.235	1 2.80	38.427
	Hygea	12.0	25.0	38.5	17 25.17	2	50.495		
	37507, Lalande . .	4.2	17.5	31.0	21 17.57	1	42.291	1 2.90	38.343
	Hygea	7.1	20.3	34.0	22 20.47	2	50.467		
	37507, Lalande . .	38.7	52.1	5.1	23 51.97	1	42.482	1 2.50	38.394
	Hygea		54.2	8.0	24 54.47	2	50.709		
	37507, Lalande . .	49.1	2.3	15.1	25 2.16	1	42.469	1 2.91	38.477
	Hygea	52.2	5.0	18.0	26 5.07	2	50.779		
	37507, Lalande . .	13.2	26.0	40.2	28 26.47	1	42.372	1 2.06	38.517
	Hygea	16.5	29.1	43.0	29 29.53	2	50.722		
	37507, Lalande . .	24.1	37.1	50.2	30 37.13	1	42.476	1 2.94	38.351
	Hygea	27.0	40.2	53.0	31 40.07	2	50.660		
	37507, Lalande . .	28.2	41.3	54.3	32 41.27	1	42.482	1 2.30	38.314
	Hygea	30.2	44.0	56.5	33 43.57	2	50.629		
	37507, Lalande . .	15.7	29.1	42.1	36 28.97	1	42.538	1 2.43	38.189
	Hygea	18.5	31.2	44.5	37 31.40	2	50.560		
	37507, Lalande . .	19.1	32.1	45.3	40 32.17	1	42.650	1 2.43	38.328
	Hygea	21.5	34.3	48.0	41 34.60	2	50.811		
	37507, Lalande . .	16.2	29.1	43.1	42 29.47	1	42.585	1 2.53	38.452
	Hygea	19.0	32.0	45.0	43 32.00	2	50.870		
	37507, Lalande . .	23.2	36.0	49.2	44 36.13	1	42.630	+ 1 2.03	— 38.466
	Hygea	25.0	38.0	51.5	45 38.16	2	50.929		

RESULTS.

Corr. Chron. (m. s.) — 1 8.34

		α (h. m. s.)	δ (° ′ ″)
(° 7)		19 45 43.31	—22 7 27.56
Hygea—(* 7)	h. m. s.	Δ α (m. s.)	Δ δ (m s.)
Sid. T.	17 0 35.79	— 1 33.74	+ 3 24.06
	Δρ	+ .02	.43
	p	— .15	+ 3.20

Corr. Chron. (m. s.) — 0 47.46

		α (h. m. s.)	δ (° ″ ′)
37507, Lalande,		19 37 38.81	—21 52 45.28
Hygea—37507, Lalande,	h. m. s.	Δ α (m. s.)	Δ δ (′ ″)
Sid. T.	17 25 48.85	+ 1 2.61	— 9 50.54
	Δρ	+ .03	— .96
	p	— .13	+ 3.48

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs	m. s.	revs.	
June 12	37507, Lalande - -	27.2	40.2	53.0	17 34 40.13	1 40.515	+ 0 30.15	— 39.114	s. Corr. Chron. + 46.29 α δ h. m. s. ° ′ ″ 37507, Lalande, 19 37 38.84 —21 52 45.22 Hygea — 37507, Lalande, Δ α Δ δ h. m. s. m. s. ′ ″ Sid. T. 17 43 47.36 + 0 29.59 —10 2.51 Δρ + .03 — .89 p — .12 + 3.55
	Hygea - - - -		10.5	23.0	35 10.28	2 49.462			
	37507, Lalande - -	49.3	2.8	16.0	37 2.70	1 40.392	0 29.97	39.267	
	Hygea - - - -	19.3	32.5	46.2	37 32.67	2 49.492			
	37507, Lalande - .	5.8	19.0	32.0	39 18.93	1 40.599	0 29.94	39.068	
	Hygea - - - -	35.7	48.9	2.0	39 48.87	2 49.500			
	37507, Lalande - -	54.1	7.6	21.3	41 7.67	1 40.447	0 29.53	39.358	
	Hygea - - - -	24.2	37.2	50.2	41 37.20	2 49.638			
	37507, Lalande - .	15.9	29.1	42.3	43 29.10	1 40.472	0 29.50	39.294	
	Hygea - - - -	45.6	58.5	11.7	43 58.60	2 49.599			
	37507, Lalande - -	15.3		42.1	45 28.70	1 40.491	0 29.50	39.088	
	Hygea - - - -	45.1	58.0	11.5	45 58.20	2 49.412			
	37507, Lalande - .	1.7	15.2		47 15.20	1 40.587	0 29.30	39.102	
	Hygea - - - -	31.2	44.3	58.0	47 44.50	2 49.522			
	37507, Lalande - -	44.2	57.9	11.5	48 57.86	1 40.575	0 29.67	39.129	
	Hygea - - - .	14.2	27.5	40.9	49 27.53	2 49.537			
	37507, Lalande - -	37.0	49.7	3.4	50 50.03	1 40.539	0 29.30	39.169	
	Hygea - - - -	6.5	19.5	32.0	51 19.33	2 49.541			
	37507, Lalande - -	17.5	30.2	43.2	52 30.30	1 40.563	+ 0 29.07	— 39.436	
	Hygea - - - -	46.5	59.3	12.3	52 59.37	2 49.832			
June 13	Hygea - - - -	35.6		2.0	23 48.80	2 45.220			s. Corr. Chron. — 43.29 α δ h. m. s. ° ′ ″ 37507, Lalande, 19 37 38.86 —21 52 45.17 Hygea — 37507, Lalande, Δ α Δ δ h. m. s. m. s. ′ ″ Sid. T. 17 33 5.01 — 0 3.73 —10 15.75 Δρ — .03 .94 p — .12 + 3.54
	37507, Lalande - -	39.1	52.0	5.7	23 52.27	1 35.291	— 0 3.47	— 40.196	
	Hygea - - - .	24.0		50.2	25 37.10	2 45.030			
	37507, Lalande - .	27.2	40.8	54.0	25 40.67	1 35.280	0 3.57	39.917	
	Hygea - - - -	31.0	44.7	57.0	27 44.23	2 45.122			
	37507, Lalande - -	35.2	48.0	1.0	27 48.07	1 35.390	0 3.84	39.899	
	Hygea - - - .	54.0		21.0	29 7.50	2 45.131			
	37507, Lalande - .	58.1	10.7	24.3	29 11.03	1 35.440	0 3.53	39.858	
	Hygea - - - -	31.2	44.0	57.2	31 44.13	2 45.279			
	37507, Lalande - -	34.5	48.1		31 47.83	1 35.320	0 3.70	40.126	
	Hygea - - - -	40.7	53.8	7.0	33 53.83	2 45.219			
	37507, Lalande - -	44.1	57.0	10.0	33 57.03	1 35.319	0 3.20	40.067	
	Hygea - - - -	30.5	43.1	56.0	36 43.20	2 45.210			
	37507, Lalande - -		47.2		36 47.20	1 35.449	0 4.00	39.928	
	Hygea - - - -	26.2	39.3	52.6	40 39.37	2 45.372			
	37507, Lalande - -	30.4	43.1	57.0	40 43.50	1 35.340	0 4.13	40.199	
	Hygea - - - .	40.1	53.0	6.5	43 53.20	2 45.449			
	37507, Lalande - -	44.3	57.4		43 57.50	4 35.322	0 4.30	40.294	
	Hygea - - - -	38.5	51.5	4.8	44 51.60	2 45.491			
	37507, Lalande - -	42.1	55.0	8.5	44 55.20	1 35.438	— 0 3.60	— 40.120	
June 24	Hygea - - - -	44.2	57.1	11.2	18 53 57.50	1 40.055			
	37221, Lalande - -	35.7	49.1	2.0	54 48.93	3 44.603	— 0 51.43	+ 64.628	
	Hygea - - - -	53.1	6.2	19.2	57 6.17	1 40.152			
	37221, Lalande - -	44.1	58.2	11.5	57 57.93	3 44.590	0 51.76	64.518	
	Hygea - - - -	52.0	4.7	18.5	59 5.07	1 40.002			
	37221, Lalande - -	43.2	56.0	9.3	18 59 56.17	3 44.821	— 0 51.10	+ 64.899	

HYGEA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.	RESULTS.
850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
ie 24	Hygea - - - -	46.1	59.0	12.5	19 0 59.20	1	40.140			Corr. Chron. s.
	37221, Lalande - -	38.2	51.2	4.1	1 51.16	3	44.598	— 0 51.96	+ 64.538	— 25.74
	Hygea - - - -	39.2	52.0	5.0	2 52.07	1	40.107			α δ
	37221, Lalande - -	30.9	43.8	57.1	3 43.93	3	44.647	0 51.86	64.620	h. m. s. ° ′ ″ 37221, Lalande, 19 31 1.93 —22 23 48.86
	Hygea - - - -	42.2	55.2	9.0	4 55.47	1	40.105			
	37221, Lalande - -	33.8	47.1	0.0	5 46.96	3	44.652	0 51.49	64.627	Hygea — 37221, Lalande, Δ α Δ δ
	Hygea - - - -	16.0	29.0	42.0	8 29.00	1	40.060			h. m. s. m. s. ′ ″
	37221, Lalande - -	8.2	21.1	34.2	9 21.17	3	46.601	0 52.17	64.621	Sid. T. 19 2 55.82 — 0 51.72 +16 32.92 Δρ .00 1.18
	Hygea - - - -	10.5	23.3	36.8	10 23.53	1	40.172			p — .03 + 3.81
	37221, Lalande - -	2.0	15.1	29.1	11 15.40	3	44.650	0 51.87	64.558	
	Hygea - - - -	14.0	27.1	40.0	12 27.03	1	39.985			
	37221, Lalande - -	5.7	18.9	32.0	13 18.87	3	44.588	— 0 51.84	+ 64.683	
g. 7	6507, B. A. C. - -	27.1	40.0	53.0	42 40.03	1	35.387	+ 0 59.50	— 72.273	m. s. Corr. Chron. + 1 19.45
	Hygea - - - -		39.5	52.5	43 39.53	3	47.580			
	6507, B. A. C. - -	5.7	19.1	32.0	47 18.93	1	35.322	1 0.17	72.128	α δ h. m. s. ° ′ ″
	Hygea - - - -	5.8	19.0	32.5	48 19.10	3	47.370			6507, B. A. C. 18 55 43.94 —21 57 13.90
	6507, B. A. C. - -	38.2	51.3	4.0	49 51.17	1	35.422	0 59.83	72.117	
	Hygea - - - -	38.0	51.0	4.0	50 51.00	3	47.459			Hygea — 6507, B. A. C. Δ α Δ δ
	6507, B. A. C. - -	1.3	14.7	28.1	52 14.70	1	35.415	0 59.97	72.026	h. m. s. m. s. ′ ″ Sid. T. 20 3 33.00 + 0 59.71 —18 29.25
	Hygea - - - -	1.3	14.5	28.2	53 14.67	3	47.361			Δρ — .03 — 1.40 p + .06 + 9.73
	6507, B. A. C. , -	54.1	7.2	19.7	55 7.00	1	35.215	0 59.50	72.225	
	Hygea - - - -	53.5	6.0	20.0	56 6.50	3	47.360			
	6507, B. A. C. - -	15.7	29.1	42.7	56 29.16	1	35.331	0 59.81	72.078	
	Hygea - - - -	15.7	29.2	42.0	57 28.97	3	47.329			
	6507, B. A. C. - -	43.0	55.2	9.1	58 55.77	1	35.149	0 59.96	72.359	
	Hygea - - - -	43.0	55.2	9.0	59 55.73	3	47.428			
	6507, B. A. C. - -	43.2	56.1	9.5	20 1 56.27	1	35.353	0 59.73	72.215	
	Hygea - - - -	42.7	56.0	9.3	2 56.00	3	47.488			
	6507, B. A. C. - -	8.2	21.0	34.0	4 21.07	1	35.331	0 59.79	72.187	
	Hygea - - - -	7.5	21.0	34.1	5 20.86	3	47.438			
	6507, B. A. C. - -	18.3	31.2	44.8	6 31.43	1	25.283	0 59.64	72,317	
	Hygea - - - -	18.0	31.0	44.2	7 31.07	3	47.520			
	6507, B. A. C. - -	6.3	19.1	32.3	9 19.23	1	35.380	0 59.94	72.027	
	Hygea - - - -	6.0	19.?	32.3	10 19.17	3	47.327			
	6507, B. A. C. - -	33.0	46.0		11 45.72	1	35.220	0 59.85	72.129	
	Hygea - - - -	32.7	46.0	58.0	12 45.57	3	47.269			
	6507, B. A. C. - -	26.5	39.1	52.7	17 39.43	1	35.335	0 59.47	72.120	
	Hygea - - - -	25.7	39.0	52.0	18 38.90	3	47.375			
	6507, B. A. C. - -	50.7	3.2	17.1	23 3.67	1	35.240	+ 0 58.83	— 72.200	
	Hygea - - - -	49.0	2.5	16.1	24 2.50	3	47.360			
g. 9	6507, B. A. C. - -	13.2	26.5	39.5	19 50 26.40	1	34.871	+ 0 3.60	— 69.794	
	Hygea - - - -	17.0		43.0	50 30.00	3	44.585			
	6507, B. A. C. - -	54.2	7.2	20.7	54 7.37	1	34.970	0 2.66	69.700	
	Hygea - - - -	57.0	10.0	23.1	54 10.03	3	44.590			
	6507, B. A. C. - -	41.2		7.5	55 54.35	1	34.791	+ 0 2.40	— 69.846	
	Hygea - - - -	43.5		10.0	19 55 56.75	3	44.557			(Continued.)

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet.—Star. Δα	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Aug. 9	6507, B. A. C.	44.2		11.0	19 57 57.60	1 34.880	+ 0 2.00	− 69.782	Corr. Chron. m. s. + 1 24.90 α h. m. s. δ ° ′ ″ 6507, B. A. C. 18 55 43.93 −21 57 13.79 Hygea — 6507, B. A. C. Δα Δδ h. m. s. m. s. ′ ″ Sid. T. 20 4 8.37 + 0 2.57 −17 51.67 Δρ − .06 − 1.72 p + .13 + 3.46
	Hygea	46.5		12.7	57 59.60	3 44.582			
	6507, B. A. C.	44.5	58.0	11.0	59 57.83	1 34.791	0 2.75	69.709	
	Hygea		1.0	13.5	20 0 0.58	3 44.420			
	6507, B. A. C.	26.4		53.2	2 39.80	1 34.940	0 2.25	69.695	
	Hygea	29.1		55.0	2 42.05	3 44.555			
	6507, B. A. C.	3.2	16.0	29.2	5 16.13	1 34.837	0 2.90	69.625	
	Hygea 1	6.1	19.0	32.0	5 19.03	3 44.382			
	6507, B. A. C.	58.0	11.3	25.2	7 11.50	1 34.690	0 2.77	69.738	
	Hygea	1.5	14.2	27.1	7 14.27	3 44.348			
	6507, B. A. C.	48.2	1.5	15.2	9 1.63	1 34.780	0 2.54	69.694	
	Hygea	51.5	4.0	17.0	9 4.17	3 44.394			
	6507, B. A. C.	37.0	50.0	3.5	10 50.17	1 34.691	0 2.70	69.759	
	Hygea	39.5	53.0	6.1	10 52.87	3 44.370			
	6507, B. A. C.	34.0		0.1	12 47.05	1 34.762	+ 0 1.75	− 69.650	
	Hygea	35.2		2.4	12 48.80	3 44.332			
Aug. 11	Hygea	15.0	28.1	41.0	23 28.03	3 39.909			Corr. Chron. m. s. + 1 29.48 α h. m. s. δ ° ′ ″ 6507, B. A. C. 18 55 43.92 −21 57 13.67 Hygea — 6507, B. A. C. Δα Δδ h. m. s. m. s. ′ ″ Sid. T. 20 40 17.60 − 0 49.96 −17 2.81 Δρ + .04 − 1.46 p + .12 + 3.51
	6507, B. A. C.	3.5	17.0	31.2	24 17.23	1 33.560	− 0 49.20	− 66.429	
	Hygea	30.5	43.7	57.3	29 43.83	3 39.900			
	6507, B. A. C.		33.5	47.1	30 33.63	1 33.528	0 49.80	66.452	
	Hygea	31.5		58.0	31 44.75	3 39.947			
	6507, B. A. C.	21.2	34.0	47.9	32 34.37	1 33.430	0 49.62	66.597	
	Hygea	24.0	36.7	50.6	33 37.10	3 39.830			
	6507, B. A. C.	14.2	26.5	40.6	34 27.10	1 33.381	0 50.00	66.529	
	Hygea	24.1	37.2	51.2	35 37.50	3 39.789			
	6507, B. A. C.	14.2	27.5	41.6	36 27.77	1 33.320	0 50.27	66.549	
	Hygea	17.5	31.3	44.2	37 31.00	3 39.870			
	6507, B. A. C.	8.4	21.3	34.3	38 21.33	1 33.239	0 50.33	66.711	
	Hygea	5.2		31.7	39 18.45	3 39.851			
	6507, B. A. C.	54.6	7.7	21.3	40 7.87	1 33.210	0 49.42	66.721	
	Hygea	42.1		9.2	42 55.65	3 39.775			
	6507, B. A. C.	32.1	45.5	59.1	43 45.57	1 33.252	0 49.92	66.603	
	Hygea	50.0	3.8	16.5	45 3.43	3 39.610			
	6507, B. A. C.	40.5	54.2	7.0	45 53.90	1 33.110	0 50.47	66.580	
	Hygea	39.3	52.5	5.7	46 52.50	3 39.651			
	6507, B. A. C.	29.5	42.7	56.2	47 42.80	1 33.178	0 50.30	66.553	
	Hygea	34.1	47.3	1.5	48 47.63	3 39.544			
	6507, B. A. C.	24.5	38.3	51.0	49 37.93	1 33.169	0 50.30	66.455	
	Hygea	44.3	57.6	10.7	50 57.53	3 39.540			
	6507, B. A. C.	34.1	47.5	0.5	51 47.37	1 33.209	− 0 49.84	− 66.411	
Aug. 12	Hygea	26.2	39.7	53.0	0 39.63	3 42.992			
	6507, B. A. C.	40.0	53.0	6.0	0 53.00	1 37.965	− 0 13.43	− 65.107	
	Hygea	48.3	1.5	14.7	5 1.50	3 42.941			
	6507, B. A. C.	1.3	14.6	28.3	5 14.73	1 37.792	0 13.23	65.229	
	Hygea	51.5	4.7	18.3	8 4.83	3 42.928			
	6507, B. A. C.	5.2	18.2	30.9	20 8 18.10	1 37.880	− 0 13.27	− 65.128	(Continued.)

HYGEA.

[D]ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
[1]850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	m. s.
[.] 12	Hygea - - - -	3.2	16.0	29.2	20 10 16.13	3 43.010		
	6507, B. A. C. - -	17.2	30.2	43.0	11 30.13	1 37.810	— 1 14.00	— 65.280
	Hygea - - - -	5.2	18.0	31.0	14 18.07	3 42.575		
	6507, B. A. C. - -	18.2	31.0	44.1	15 31.10	1 37.382	1 13.03	65.273
	Hygea - - - -	7.1	20.0	33.3	17 20.13	3 42.482		
	6507, B. A. C. - -		34.2	47.2	18 34.18	1 37.487	1 14.05	65.075
	Hygea - - - -	41.7		8.0	19 54.85	3 42.430		
	6507, B. A. C. - -	55.8	8.7	21.7	21 8.73	1 37.372	1 13.88	65.138
	Hygea - - - -	1.5	14.3	27.5	22 14.43	3 42.610		
	6507, B. A. C. - -	14.7	28.1	41.5	23 28.10	1 37.422	1 13.67	65.268
	Hygea - - - -	19.2	32.7	45.7	25 32.53	3 42.472		
	6507, B. A. C. - -	32.7	46.1	59.3	26 46.03	1 37.377	1 13.50	65.175
	Hygea - - - -	50.1	3.0	16.2	28 3.20	3 42.441		
	6507, B. A. C. - -	4.2	17.5	31.0	29 17.57	1 37.321	— 1 14.37	— 65.200
[.] 15	Hygea - - - -	12.1		38.0	19 52 25.05	3 37.801		
	6507, B. A. C. - -	28.7	42.0	55.2	54 41.97	1 37.940	— 2 16.92	— 59.941
	Hygea - - - -		36.0	49.1	58 35.83	3 37.815		
	6507, B. A. C. - -	39.7	53.2	6.5	20 0 53.13	1 37.978	2 17.30	59.917
	Hygea - - - -	8.1	21.2	34.0	3 21.10	3 37.801		
	6507, B. A. C. - -	24.1	37.2	51.2	5 37.50	1 27.908	2 16.40	59.973
	Hygea - - - -	58.2	11.5	24.2	8 11.30	3 37.659		
	6507, B. A. C. - -	15.4	28.8	41.5	10 28.57	1 37.908	2 17.27	59.831
	Hygea - - - -	26.1		52.0	19 39.05	3 37.830		
	6507, B. A. C. - -	42.7	55.7	9.0	21 55.80	1 38.121	— 2 16.75	— 59.789
[.] 16	Hygea - - - -		33.0	46.2	19 54 32.98	3 32.499		
	6507, B. A. C. - -	55.3	8.7	22.2	57 8.73	1 34.756	— 2 35.75	— 57.823
	Hygea - - - -	20.2	33.6	46.2	59 33.33	3 32.658		
	6507, B. A. C. - -	55.3	8.7	21.3	20 2 8.43	1 34.689	2 35.10	58.049
	Hygea - - - -	0.2	13.7	26.9	4 13.60	3 32.530		
	6507, B. A. C. - -	35.6	48.7	2.1	6 48.80	1 34.651	2 35.20	57.959
	Hygea - - - -	29.2	42.2	55.1	9 42.17	3 32.549		
	6507, B. A. C. - -	4.3	17.2	31.0	12 17.50	1 34.741	2 35.33	57.888
	Hygea - - - -	11.8	24.6	37.9	14 24.77	3 32.542		
	6507, B. A. C. - -	47.0	59.6	13.5	17 0.03	1 34.560	2 35.26	58.062
	Hygea - - - -	14.6	27.2	40.2	20 27.33	3 33.365		
	6507, B. A. C. - -	49.7	3.0	16.2	23 2.97	1 34.445	2 35.64	58.000
	Hygea - - - -	11.0	24.7	38.0	25 24.57	3 32.382		
	6507, B. A. C. - -	47.2	0.0	13.1	28 0.10	1 34.472	2 35.53	57.990
	Hygea - - - -	53.8	7.2	20.0	30 7.00	3 32.420		
	6507, B. A. C. - -	29.2	43.1	55.7	32 42.67	1 34.460	— 2 35.67	— 58.040
[.] 27	Hygea - - - -	57.9	11.0	24.0	0 10.97	2 36.859		
	(° 8) - - - - -	48.0	1.2	14.0	1 1.07	2 26.060	— 0 50.10	— 10.799
	Hygea - - - -	18.0	31.2	44.6	2 31.27	2 36.930		
	(° 8) - - - - -		20.9	34.0	3 20.82	2 26.009	— 0 49.55	— 10.921

RESULTS.

		m. s.	
Corr. Chron.		— 1 31.68	
		α	δ
		h. m. s	° ′ ″
6507, B. A. C.,		18 55 43.91	—21 57 13.61
Hygea—6507, B. A. C,		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	20 16 40.21	— 1 13.64	—16 41.91
	Δρ	+ .03	— 1.32
	p	+ .08	+ 3.55

		m. s.	
Corr. Chron.		+ 1 42.46	
		α	δ
		h. m. s.	° ′ ″
6507, B. A. C.,		18 55 43.90	—21 57 13.42
Hygea—6507, B. A. C.		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	20 6 8.93	— 2 16.93	—15 20.48
	Δρ	+ .02	— 1.17
	p	+ .09	+ 3.51

		m. s.	
Corr. Chron.		+ 1 45.02	
		α	δ
		h. m s.	° ′ ″
6507, B. A. C.,		18 55 43.89	—21 57 13.36
Hygea—6507, B. A. C.		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	20 14 3.24	— 2 35.43	—14 51.03
	Δρ	+ .03	— 1.13
	p	+ .08	+ 3.47

(Continued.)

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	B.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	m. s.
1850. Aug. 27	Hygea	51.5	4.7	17.9	20 5 4.70	2 36.700		
	(° 8)	40.9	54.0	7.2	5 54.03	2 25.982	− 0 49.33	− 10.718
	Hygea	12.7	25.6	38.7	8 25.67	2 36.840		
	(° 8)	1.9	15.0	29.5	9 15.47	2 25.870	0 49.80	10.970
	Hygea	48.1	1.1	14.0	11 1.07	2 36.845		
	(° 8)	38.2	51.2	4.1	11 51.17	2 25.961	0 50.10	10.884
	Hygea		11.0	24.2	14 10.82	2 36.773		
	(° 8)	47.5	1.5	14.2	15 1.07	2 25.951	0 50.25	10.822
	Hygea	29.7		56.2	16 42.95	2 36.725		
	(° 8)	19.0	32.0	45.2	17 32.06	2 25.928	0 49.11	10.797
	Hygea		25.1	38.1	19 24.95	2 36.691		
	(° 8)	1.5	14.8	28.1	20 14.80	2 25.923	0 49.85	10.768
	Hygea	7.0	20.2	33.1	23 20.10	2 36.640		
	(° 8)		9.7	23.1	24 9.85	2 25.849	0 49.75	10.791
	Hygea	36.0	49.7	3.1	28 49.60	2 37.455		
	(° 8)	26.5	39.1	53.1	29 39.57	2 26.772	− 0 49.97	− 10.683
Aug. 28	A. Z., 224, 10 . .	39.1	52.1	5.0	19 42 52.07	2 29.542	+ 0 41.93	− 12.802
	Hygea	21.0	34.0	47.0	43 34.00	2 42.345		
	A. Z., 224, 10 . .	24.0	37.1	50.0	54 37.03	2 29.422	0 41.30	12.787
	Hygea	5.0	18.1	31.9	55 18.33	2 42.209		
	A. Z., 224, 10 . .	7.1	19.9	33.7	57 20.23	2 29.421	0 40.97	12.900
	Hygea	48.0	1.0	14.6	58 1.20	2 42.321		
	A. Z., 224, 10 . .	53.4	6.2	19.1	59 6.23	2 29.530	0 41.57	12.892
	Hygea	34.3	48.1	1.0	59 47.80	2 42.422		
	A. Z., 224, 10 . .	9.2	23.1	36.0	20 1 22.76	2 29.590	0 41.34	12.922
	Hygea	51.0	4.2	17.1	2 4.10	2 42.512		
	A. Z., 224, 10 . .	59.2	12.0	25.7	3 12.30	2 29.550	0 41.60	12.880
	Hygea	40.7	53.7	7.3	3 53.90	2 42.430		
	A. Z., 224, 10 . .	37.5	50.5	3.2	4 50.40	2 29.510	0 41.37	12.799
	Hygea	18.5	31.7	45.1	5 31.77	2 42.309		
	A. Z., 224, 10 . .	28.1	41.1	54.0	6 41.07	2 29.580	0 41.90	12.841
	Hygea	9.7	23.2	36.0	7 22.97	2 42.421		
	A. Z., 224, 10 . .	49.4	2.1	16.1	9 2.53	2 29.630	0 41.50	12.860
	Hygea	30.9	44.1	57.1	9 44.03	2 42.490		
	A. Z., 224, 10 . .	33.5	47.1	0.7	10 47.10	2 29.620	0 40.87	12.824
	Hygea	14.9	28.0	41.0	11 27.97	2 42.444		
	A. Z., 224, 10 . .	25.7	39.2	52.0	12 38.97	2 29.660	0 40.83	12.710
	Hygea	7.1	19.3	33.0	13 19.80	2 42.370		
	A. Z., 224, 10 . .	25.5	38.7	52.0	14 38.73	2 29.685	0 41.20	12.837
	Hygea	7.1	19.5	33.2	15 19.93	2 42.522		
	A. Z., 224, 10 . .	4.7	18.1	31.0	16 17.93	2 29.580	0 41.17	12.828
	Hygea	46.0	59.1	12.2	16 59.10	2 42.408		
	A. Z., 224, 10 . .	55.7	8.7	22.0	17 8.80	2 29.640	0 41.10	12.808
	Hygea	37.0	49.7	3.0	17 49.90	2 42.448		
	A. Z., 224, 10 . .	55.7	9.0	22.0	19 8.90	2 29.512	+ 0 41.26	− 12.917
	Hygea	37.0	50.0	3.5	19 50.16	2 42.429		

RESULTS.

Aug. 27:

Corr. Chron.		m. s. + 2 17.94	
		α (h. m. s.)	δ (° ′ ″)
(° 8)		18 52 11.56	−22 2 42.97
Hygea—(° 8)	h. m. s.	$\Delta\alpha$ (m. s.)	$\Delta\delta$ (′ ″)
Sid. T.	20 15 15.15	− 0 49.78	− 2 46.22
$\Delta\rho$		.00	− .22
p		+ .08	+ 3.27

Aug. 28:

Corr. Chron.		m. s. + 2 20.07	
		α (h. m. s.)	δ (° ′ ″)
A. Z., 224, 10,		18 50 39.02	−22 1 29.15
Hygea—A. Z., 224, 10,	h. m. s.	$\Delta\alpha$ (m. s.)	$\Delta\delta$ (′ ″)
Sid. T.	20 9 0.40	+ 0 41.33	− 3 17.36
$\Delta\rho$		.00	− .24
p		+ .07	+ 3.28

HYGEA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
350.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
g. 29	A. Z., 224, 110	53.0	6.2	19.7	19 7 6.30	2	38.150	+ 0 41.87	− 10.160
	Hygea	35.0	48.0	1.5	7 48.17	2	48.310		
	A. Z., 224, 110	0.5	13.4	27.1	9 13.67	2	38.070	0 41.59	10.085
	Hygea	42.0	55.3	8.5	9 55.26	2	48.155		
	A. Z., 224, 110	54.3	7.8	21.3	11 7.80	2	38.188	0 41.70	10.001
	Hygea	36.3	49.5	2.7	11 49.50	2	48.189		
	A. Z., 224, 110	45.7	59.3	12.7	12 59.23	2	38.219	0 41.27	9.991
	Hygea	27.1	40.7	53.7	13 40.50	2	48.210		
	A. Z., 224, 110	39.7	53.2	6.7	14 53.20	2	38.161	0 41.30	10.061
	Hygea	21.5	34.5	47.5	15 34.50	2	48.222		
	A. Z., 224, 110	29.2	42.7	56.0	16 42.63	2	38.225	0 41.75	10.007
	Hygea	11.2	24.2		17 24.38	2	48.232		
	A. Z., 224, 110	46.3	59.7	13.5	19 59.83	2	38.144	0 41.57	10.021
	Hygea	28.1	41.5	54.6	20 41.40	2	48.165		
	A. Z., 224, 110	40.9	54.0	8.3	21 54.40	2	38.082	0 41.70	10.098
	Hygea	23.1	36.0	49.2	22 36.10	2	48.180		
	A. Z., 224, 110	39.5	52.6	5.2	23 52.43	2	38.181	0 41.73	9.878
	Hygea	21.0	34.2	47.3	24 34.16	2	48.059		
	A. Z., 224, 110	35.7	48.2	2.0	25 48.63	2	38.187	0 41.60	10.044
	Hygea	17.2	29.8	43.7	26 30.23	2	48.231		
	A. Z., 224, 110	13.1	26.2	39.2	27 26.17	2	38.088	0 41.63	10.172
	Hygea	54.6	7.5	21.3	28 7.80	2	48.260		
	A. Z., 224, 110	55.1	8.0	20.9	29 8.00	2	38.069	0 41.67	10.041
	Hygea	36.4	49.6	3.0	29 49.67	2	48.110		
	A. Z., 224, 110	0.5	13.7	27.2	31 13.80	2	38.157	0 41.77	9.943
	Hygea	42.2	55.7	8.8	31 55.57	2	48.100		
	A. Z., 224, 110	35.9	49.7	3.0	32 49.53	2	38.227	+ 0 42.04	− 9.932
	Hygea	18.1	31.5	45.1	33 31.57	2	48.159		

RESULTS.

Corr. Chron. + 2 23.87 (m. s.)

	α (h. m. s.)	δ (° ′ ″)
A. Z., 224, 110,	18 50 39.01	−22 1 29.19

Hygea—A. Z., 224, 110,		Δα (m. s.)	Δδ (′ ″)
Sid. T.	19 23 23.79 (h. m. s.)	+ 0 42.66	− 2 34.17
	Δρ	.00	− .18
	p	+ .03	+ 3.31

ATE.	OBJECTS.	A.	B.	C.	Mean.	Mic.		Δ α	Δ mic.
g. 31	A. Z., 224, 110	42.5	55.6	9.0	20 17 55.70	2	37.749	+ 0 46.46	− 3.950
	Hygea	29.0	42.5	55.0	18 42.16	2	41.699		
	A. Z., 224, 110	26.4	39.2	53.1	20 39.57	2	37.717	0 46.66	4.023
	Hygea	13.0	26.2	39.5	21 26.23	2	41.740		
	A. Z., 224, 110	15.9	29.4	42.0	22 29.10	2	37.719	0 46.77	4.011
	Hygea	2.7	16.2	28.7	23 15.87	2	41.730		
	A. Z., 224, 110	7.7	20.8	34.2	24 20.90	2	37.590	0 46.33	4.022
	Hygea	54.2	7.1	20.4	25 7.23	2	41.612		
	A. Z., 224, 110	57.2	10.2	23.7	26 10.37	2	37.637	0 46.50	3.819
	Hygea	43.7	56.9	10.0	26 56.87	2	41.456		
	A. Z., 224, 110	29.7	43.0	56.8	28 43.17	2	37.581	0 46.36	3.869
	Hygea	16.5	29.1	43.0	29 29.53	2	41.450		
	A. Z., 224, 110	27.2	40.0	53.0	30 40.07	2	37.561	0 46.70	3.964
	Hygea	13.2	27.0	40.1	31 26.77	2	41.525		
	A. Z., 224, 110	36.2	49.1	2.7	32 49.33	2	37.617	0 46.70	3.855
	Hygea	23.0	36.1	49.0	33 36.03	2	41.472		
	A. Z., 224, 110	16.2	29.7	43.1	20 34 29.67	2	37.463	+ 0 46.59	− 3.979
	Hygea	3.1	16.0	29.7	35 16.26	2	41.442		

Corr. Chron. + 2 30.80 (m. s.)

	α (h. m. s.)	δ (° ′ ″)
A. Z, 224, 110,	18 50 38.98	−22 1 29.25

Hygea—A. Z., 224, 110,		Δα (m. s.)	Δδ (′ ″)
Sid. T.	20 30 45.30 (h. m. s.)	+ 0 46.56	− 1 0.54
	Δρ	.00	− .09
	p	+ .09	+ 3.18

(Continued.)

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.
		s.	s.	s.	h. m. s.	w.	revs.	m. s	revs.
1850. Aug. 31	A. Z., 224, 110 - -	8.1	21.7	34.8	20 36 21.53	2	37.473	+ 0 46.50	− 3.897
	Hygea - - - -	55.1	8.0	21.0	37 8.03	2	41.370		
Sept. 2	A. Z, 224, 110 - -	19.1	32.0	44.9	19 52 32.00	2	38.471	+ 0 57.17	+ 2.150
	Hygea - - - -	16.0	29.5	42.0	54 29.17	2	36.321		
	A. Z., 224, 110 - -	38.4	51.7	5.0	55 51.70	2	38.455	0 57.40	2.120
	Hygea - - - -	36.2	49.1	2.0	56 49.10	2	36.335		
	6507, B. A. C. - -	43.2	56.4	10.2	20 0 56.60	2	21.882		
	A. Z, 224, 110 - -	36.0	49.3	2.7	2 49.33	2	38.727	0 56.84	2.278
	Hygea - - - -	32.9	46.1	59.5	3 46.17	2	36.449		
	A. Z., 224, 110 - -	50.7	3.9	17.2	4 3.93	2	38.580	0 57.37	2.108
	Hygea - - - -	48.2	1.1	14.6	5 1.30	2	36.472		
	A. Z., 224, 110 - -	55.6	9.0	21.8	6 8.80	2	38.683	0 56.80	2.222
	Hygea - - - -	52.6	5.7	18.5	7 5.60	2	36.461		
	A. Z, 224, 110 - -	49.5	2.0	15.7	10 2.40	2	38.695	0 57.23	2.280
	Hygea - - - -	46.2	59.7	13.0	10 59.63	2	36.415		
	A. Z., 224, 110 - -	3.7	16.5	29.7	12 16.63	2	38.632	0 58.04	2.227
	Hygea - - - -	1.5	14.6	27.9	13 14.67	2	36.405		
	A. Z., 224, 110 - -	7.9	21.2	34.8	14 21.30	2	38.720	0 57.13	2.331
	Hygea - - - -	5.2	18.6	31.5	15 18.43	2	36.389		
	A. Z, 224, 110 - -	7.4	20.3	33.8	16 20.50	2	38.615	0 57.27	2.304
	Hygea - - - -	4.3	18.0	31.0	17 17.77	2	36.311		
	A. Z., 224, 110 - -	3.4	16.9	29.6	18 16.63	2	38.586	0 57.37	2.317
	Hygea - - - -	0.9	14.0	27.1	19 14.00	2	36.269		
	A. Z., 224, 110 - -	9.8		36.0	20 22.90	2	38.685	0 57.23	2.315
	Hygea - - - -	7.2	20.0	33.2	21 20.13	2	36.370		
	A. Z., 224, 110 - -	5.0	18.5	31.7	22 18.40	2	38.530	+ 0 57.37	+ 2.212
	Hygea - - - -	2.5	15.7	29.1	23 15.77	2	36.318		
Sept. 3	A. Z., 224, 110 - -	49.2	1.9	16.0	19 55 2.37	3	37.730	+ 1 4.63	+ 5.525
	Hygea - - - -	54.0	7.0	20.0	56 7.00	3	32.205		
	A. Z., 224, 110 - -	46.2	59.6	13.0	58 59.60	3	37.761	1 4.50	5.573
	Hygea - - - -	51.0	4.0	17.3	20 0 4.10	3	32.188		
	A. Z., 224, 110 - -	1.7	15.3	28.0	3 15.00	3	37.674	1 4.63	5.524
	Hygea - - - -	6.5	19.4	33.0	4 19.63	3	32.150		
	A. Z., 224, 110 - -	58.2	11.5	24.7	8 11.47	3	37.663	1 4.50	5.403
	Hygea - - - -	2.7	16.1	29.1	9 15.97	3	32.260		
	A. Z., 224, 110 - -	59.5	13.1	26.1	11 12.90	3	37.451	1 5.15	5.431
	Hygea - - - -		18.1	31.0	12 18.05	3	32.020		
	A. Z., 224, 110 - -	7.9	20.2	33.9	17 20.67	3	37.531	1 5.16	5.486
	Hygea - - - -	12.5	26.0	39.0	18 25.83	3	32.045		
	A. Z., 224, 110 - -	13.1	26.2	39.6	21 26.30	3	37.509	1 4.97	5.621
	Hygea - - - -	18.1	31.7	44.0	22 31.27	3	31.888		
	A. Z., 224, 110 - -	53.7	7.0	20.2	30 6.97	3	37.271	1 4.46	5.399
	Hygea - - - -	58.0	11.2	25.1	31 11.43	3	31.872		
	A. Z., 224, 110 - -	49.7	2.7	16.0	34 2.80	3	37.215	1 4.50	5.513
	Hvgea - - - -	54.0	7.2	20.7	35 7.30	3	31.702		
	A. Z., 224, 110 - -	13.2	26.2	39.4	20 39 26.26	3	37.075	+ 1 5.31	+ 5.463
	Hygea - - - -	18.3	31.4	45.0	40 31.57	3	31.612		

RESULTS.

Sept. 2:

Corr. Chron.		m. s. + 2 37.54	
		α h. m. s.	δ ° ′ ″
A. Z, 224, 110,		18 50 38.96	−22 1 29.32
Hygea — A. Z, 224, 110,		$\Delta\alpha$ m. s.	$\Delta\delta$ ′ ″
Sid. T.	h. m. s. 20 13 16.85	+ 0 57.27	+ 0 34.38
	$\Delta\rho$	.00	.05
	p	+ .07	+ 3.16

Sept. 3:

Corr. Chron.		m. s. + 2 40.36	
		α h. m. s.	δ ° ′ ″
A. Z., 224, 110,		18 50 38.95	−22 1 29.35
Hygea — A. Z., 224, 110,		$\Delta\alpha$ m. s.	$\Delta\delta$ ′ ″
Sid. T.	h. m. s. 20 19 45.58	+ 1 4.78	+ 1 24.44
	$\Delta\rho$	.00	.11
	p	+ .08	+ 3.12

HYGEA.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
50.		s.	s.	s.	h. m s.	w.	revs.	m. s.	revs.
4	A. Z., 224, 110 . .	2.7	16.0	29.1	19 42 15.93	3	38.570	+ 1 13.10	+ 8.580
	Hygea	16.0	29.1	42.0	43 29.03	3	29.990		
	A. Z., 224, 110 . .	5.1	18.0	31.5	46 18.20	3	38.749	1 13.83	8.784
	Hygea	19.0	32.1	45.0	47 32.03	3	29.965		
	A. Z., 224, 110 . .	5.7	19.3	32.8	50 19.26	3	38.750	1 13.51	8.745
	Hygea	19.2	33.1	46.0	51 32.77	3	30.005		
	A. Z., 224, 110 . .	14.2	27.2	40.1	54 27.16	3	38.442	1 13.54	8.601
	Hygea	37.3	40.7	54.1	55 40.70	3	29.841		
	A. Z., 224, 110 . .	21.0	34.3	47.5	58 34.27	3	38.541	+ 1 13.46	+ 8.719
	Hygea	34.1	48.1	1.0	59 47.73	3	29.822		
6	A. Z., 224, 110 . .	50.2		17.0	20 10 3.60	3	45.845	+ 1 34.40	+ 15.576
	Hygea	25.0	38.0	51.0	11 38.00	3	30.269		
	A. Z., 224, 110 . .	8.7		35.0	17 21.85	3	45.815	1 36.15	15.635
	Hygea	45.0	58.0	11.0	18 58.00	3	30.180		
	A. Z., 224, 110 . .	33.9	46.9	0.5	20 47.10	3	45.710	1 35.67	15.490
	Hygea	9.2	23.1	36.0	22 22.77	3	30.220		
	A. Z., 224, 110 . .	29.1	42.1	55.0	24 42.77	3	45.842	1 34.90	15.633
	Hygea	4.0	18.0	31.0	26 17.67	3	30.209		
	A. Z., 224, 110 . .	32.9	46.0	59.0	27 45.97	3	45.798	1 35.06	15.628
	Hygea	8.1	21.0	34.0	29 21.03	3	30.170		
	A. Z., 224, 110 . .	18.0	30.9	44.0	31 30.97	3	45.777	1 35.13	15.767
	Hygea	53.0	6.1	19.2	33 6.10	3	30.010		
	A. Z., 224, 110 . .	48.0	1.9	14.0	35 1.30	3	45.607	— 1 35.43	+ 15.591
	Hygea	24.0	36.2	50.0	36 36.73	3	30.010		
10	Hygea	46.0		12.0	21 0 59.00	2	50.288		
	6507, B. A. C. . .	14.1	27.2	40.5	3 27.26	3	33.920	— 2 28.26	+ 13.632
	Hygea	28.0	41.2	54.0	5 41.07	2	50.240		
	6507, B. A. C. . .	56.0	9.0	22.0	8 9.00	2	63.720	2 27.93	13.480
	Hygea	46.1	59.0	13.0	9 59.37	2	50.001		
	6507, B. A. C. . .	15.1	28.1	41.7	12 28.30	2	63.669	2 28.93	13.668
	Hygea	55.0	8.0	21.0	15 8.00	2	50.155		
	6507, B. A. C. . .	23.5	36.3	49.7	17 36.50	2	63.720	2 28.50	13.565
	Hygea	48.5	2.0	15.0	20 1.83	2	49.920		
	6507, B. A. C. . .	17.2	30.6	43.5	22 30.43	2	63.558	2 28.60	13.638
	Hygea	48.9	2.0	15.0	24 1.97	2	49.977		
	6507, B. A. C. . .	16.5	29.3	43.2	26 29.67	2	63.422	2 27.70	13.445
	Hygea	7.0		34.2	29 20.60	2	49.990		
	6507, B. A. C. . .	35.9	49.3	2.4	31 49.20	2	63.325	— 2 28.60	+ 13.335
11	Hygea	1.0	14.0	27.5	19 14 14.16	2	47.991		
	6507, B. A. C. . .	12.0	25.5	38.7	16 25.40	2	65.022	— 2 11.24	+ 17.031
	Hygea	53.0		19.2	21 6.10	2	47.960		
	6507, B. A. C. . .	4.2	17.2	30.7	23 17.37	2	64.950	2 11.27	16.990
	Hygea	58.1		24.0	25 11.05	2	47.839		
	6507, B. A. C. . .	9.0	22.0	35.5	27 22.17	2	64.977	2 11.12	17.138
	Hygea	46.2	59.0	13.0	30 59.40	2	44.392		
	6507, B. A. C. . .	57.0	10.9	24.0	33 10.63	2	61.432	— 2 11.23	+ 17.040

RESULTS.

Date 4:

Corr. Chron. + 2 m. 42.14 s.

		α	δ
		h. m. s.	° ′ ″
A. Z., 224, 110,		18 50 38.94	—22 1 29.39
Hygea—A. Z., 224, 110,		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	19 54 18.59	+ 1 13.49	+ 2 13.50
	Δ ρ	.00	.16
	p	+ .05	+ 3.16

Date 6:

Corr. Chron. + 2 m. 49.90 s.

		α	δ
		h. m. s.	° ′ ″
A. Z., 224, 110		18 50 38.91	—22 1 29.45
Hygea—A. Z., 224, 110,		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	20 28 18.51	+1 35.25	+ 4 0.03
	Δ ρ	.00	.33
	p	+ .08	+ 3.05

Date 10:

Corr. Chron. + 3 m. 1.28 s.

		α	δ
		h. m. s.	° ′ ″
6507, B. A. C.		18 55 43.58	—21 57 14.18
Hygea—6507, B. A. C.		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	21 18 2.97	— 2 28.36	+ 3 28.06
	Δ ρ	— .01	.37
	p	+ .12	+ 2.88

Date 11:

Corr. Chron. + 3 m. 3.48 s.

		α	δ
		h. m. s.	° ′ ″
6507, B. A. C.		18 55 43.56	—21 57 14.21
Hygea—6507, B. A. C.		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	19 29 17.43	— 2 11.23	+ 4 22.17
	Δ ρ	— .00	.31
	p	+ .03	+ 3.05

(Continued.)

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
Sept. 11	Hygea	26.0	39.1	52.0	19 39 39.03	2	44.710			
	6507, B. A. C. . .	37.1	50.0	3.0	41 50.03	2	61.800	— 2 11.27	+ 17.090	
Sept. 12	Hygea	33.0	46.0	0.0	51 46.33	2	41.502			
	6507, B. A. C. . .	24.9	38.0	51.0	53 37.97	2	62.690	— 1 51.64	+ 21.100	
	Hygea	49.0	2.1	15.1	57 2.07	2	41.460			
	6507, B. A. C. . .	39.5	53.1	6.3	58 52.97	3	32.827	1 50.90	21.279	m. s.
	Hygea	22.3	35.6	49.1	20 0 35.67	2	41.482			Corr. Chron. + 3 6.06
	6075, B. A. C. . .	14.2	27.5	40.3	2 27.33	3	32.730	1 51.66	21.160	α δ
	Hygea	14.1	27.2	40.0	4 27.10	2	41.372			h. m. s. ° ′ ″
	6507, B. A. C. . .	4.8	18.1	31.6	6 18.17	3	32.640	1 51.07	21.180	6507, B. A. C. 18 55 43.55 —21 57 14.24
	Hygea	27.1	40.2	53.0	8 40.10	2	41.311			Hygea—6507, B. A. C. Δα Δδ
	6507, B. A. C. . .	17.5	31.0	44.5	10 31.00	3	32.670	1 50.90	21.271	h. m. s. m. s. ′ ″
	Hygea	44.2	57.0	11.2	11 57.47	2	41.251			Sid. T. 20 12 51.92 — 1 50.89 + 5 26.02
	6507, B. A. C. . .	34.3	48.0	1.3	13 47.87	3	32.605	1 50.40	21.266	Δρ — .01 .41 p + .06 + 2.98
	Hygea	1.2	14.4	27.9	15 14.50	2	41.360			
	6507, B. A. C. . .	51.9	4.8	18.2	17 4.97	3	32.629	1 50.47	21.181	
	Hygea	11.0	23.9	37.4	19 24.10	2	41.273			
	6507, B. A. C. . .		15.0	27.9	21 14.90	3	32.610	1 50.80	21.249	
	Hygea	27.9	41.0	54.0	22 40.97	2	41.220			
	6507, B. A. C. . .	18.3	32.0	45.1	24 31.80	3	32.512	1 50.83	21.204	
	Hygea	37.2	50.0	3.6	25 50.26	2	41.148			
	6507, B. A. C. . .	27.3	40.5	53.7	27 40.50	3	32.462	— 1 50.24	+ 21.226	
Sept. 13	Hygea	42.5		9.0	19 52 55.75	2	37.410			
	6507, B. A. C. . .	12.0	25.7	39.0	54 25.57	3	32.418	— 1 29.82	+ 24.920	
	Hygea	1.3	14.4	27.2	56 14.30	2	37.333			
	6507, B. A. C. . .	31.2	44.0	57.5	57 44.23	3	32.401	1 29.93	24.980	
	Hygea	59.6	12.7	26.1	59 12.80	2	37.135			m. s.
	6507, B. A. C. . .	28.9	42.3	55.7	20 0 42.30	3	32.398	1 29.50	25.175	Corr. Chron. + 3 9.12
	Hygea	36.0	49.2	2.0	2 49.07	2	37.118			α δ
	6507, B. A. C. . .		19.2	32.0	4 19.07	3	32.395	1 30.00	25.189	h. m. s. ° ′ ″
	Hygea	30.8	44.0	57.0	5 43.93	2	37.150			6507, B. A. C. 18 55 43.54 —21 57 14.28
	6507, B. A. C. . .	0.5	14.0	27.2	7 13.90	3	32.290	1 29.97	25.052	Hygea—6507, B. A. C. Δα Δδ
	Hygea	12.0	25.1	38.0	8 25.03	2	37.050			h. m. s. m. s. ′ ″
	6507, B. A. C. . .	41.6	54.0	7.5	9 54.37	3	32.312	1 29.34	25.174	Sid. T. 20 10 2.36 — 1 29.85 + 6 25.33
	Hygea	57.1	10.5	23.3	11 10.30	2	37.095			Δρ — .01 .49
	6507, B. A. C. . .	27.0	40.3	53.6	12 40.30	3	32.220	1 30.00	25.037	p + .06 + 2.96
	Hygea	27.5		54.0	14 40.75	2	37.235			
	6507, B. A. C. . .	57.3	10.8	24.1	16 10.73	3	32.277	1 29.98	24.954	
	Hygea	21.0	34.0	47.0	17 34.00	2	37.065			
	6507, B. A. C. . .	51.3	4.2	17.5	19 4.33	3	32.300	1 30.33	25.147	
	Hygea	53.0	7.0	19.5	20 6.50	2	37.068			
	6507, B. A. C. . .	23.0	36.2	49.1	21 36.10	3	32.238	— 1 29.60	+ 25.082	
Sept. 16	Hygea	15.1	28.0		20 24 28.18	2	24.260			
	6507, B. A. C. . .	33.0	46.2	59.5	24 46.23	3	31.981	— 0 18.05	+ 37.633	
	Hygea	45.8	59.1	13.0	26 59.30	2	24.175			
	6507, B. A. C. . .		18.5	30.9	27 17.95	3	31.962	— 0 18.65	+ 37.699	(Continued.)

HYGEA.

.TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.
50.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
16	Hygea	23.2	36.0		20 29 36.00	2	24.260		
	6507, B. A. C. . .		54.0	7.9	29 54.00	3	31.981	− 0 18.00	+ 37.633
	Hygea	41.0	54.2		33 54.20	2	24.175		
	6507, B. A. C. . .		12.0	55.0	34 12.00	3	31.962	0 17.80	37.699
	Hygea	9.0	22.0		35 22.00	2	24.155		
	6507, B. A. C. . .	27.5	40.0	53.2	35 40.23	3	31.755	0 18.23	37.512
	Hygea	17.2	31.2		38 31.20	2	24.110		
	6507, B. A. C. . .		49.2	2.3	38 49.20	3	31.918	0 18.00	37.720
	Hygea	13.2	26.0		41 26.00	2	24.030		
	6507, B. A. C. . .		44.6	58.1	41 44.60	3	32.010	0 18.60	37.892
	Hygea	8.5	21.5		44 21.50	2	24.185		
	6507, B. A. C. . .		39.2	52.5	44 39.20	3	31.948	0 17.70	37.675
	Hygea	9.4	23.0		47 23.00	2	24.175		
	6507, B. A. C. . .		41.0	54.0	47 41.00	3	32.000	0 18.00	37.737
	Hygea	2.1	16.1		51 16.10	2	24.202		
	6507, B. A. C. . .		33.2	47.1	51 33.20	3	31.912	0 17.10	37.622
	Hygea	36.2	49.1		21 29 49.10	2	23.079		
	6507, B. A. C. . .		7.3	20.2	30 7.30	3	31.040	0 18.20	37.873
	Hygea	7.8	21.2		32 21.20	2	23.119		
	6507, B. A. C. . .		38.0	51.6	32 38.00	3	30.990	0 16.80	37.783
	Hygea	23.1	36.2		34 36.20	2	22.886		
	6507, B. A. C. . .		53.4	7.2	34 53.20	3	30.880	0 17.00	37.906
	Hygea	14.1	27.2		37 27.20	2	22.775		
	6507, B. A. C. . .		44.6	58.2	37 44.60	3	30.772	0 17.40	37.909
	Hygea	29.2	42.0		39 42.00	2	22.793		
	6507, B. A. C. . .		59.2	12.7	39 59.20	3	30.800	− 0 17.20	+ 37.919

RESULTS.

Corr. Chron. m. s. + 3 18.55

		α (h. m. s.)	δ (° ′ ″)
6507, B. A. C.		18 55 43.50	−21 57 14.38
Hygea — 6507, B. A. C.	h. m. s.	Δα (m. s.)	Δδ (′ ″)
Sid. T.	20 59 47.47	− 0 17.78	+ 9 40.15
	Δρ	− .03	.89
	p	+ .10	+ 2.86

	OBJECTS.	A.	B.	C.	Mean.	w.	revs.	Δα	Δ mic.
t. 17	6507, B. A. C. . .	47.1	0.3	13.8	19 39 0.40	3	39.549	+ 0 6.70	+ 42.129
	Hygea		7.0	20.5	39 7.10	2	27.332		
	6507, B. A. C. . .	38.3	51.4	4.7	41 51.47	3	39.562	0 6.73	42.062
	Hygea	45.1	58.2	11.3	41 58.20	2	27.412		
	6507, B. A. C. . .	34.2	47.0	0.5	48 47.23	3	39.515	0 6.85	42.179
	Hygea		54.0	7.0	48 54.08	2	27.248		
	6507, B. A. C. . .	48.5	1.0	14.3	53 1.26	3	39.472	0 7.01	41.939
	Hygea	53.1	8.2	21.5	53 8.27	2	27.445		
	6507, B. A. C. . .	0.4	13.4	26.2	56 13.33	3	39.460	0 6.97	42.092
	Hygea	7.5	20.0	33.5	56 20.30	2	27.280		
	6507, B. A. C. . .	42.5	55.2	8.0	59 55.23	3	39.370	0 7.04	41.982
	Hygea	49.1	2.0	15.7	20 0 2.27	2	27.300		
	6507, B. A. C. . .	9.6	23.2	36.3	1 23.03	3	39.528	0 6.94	42.119
	Hygea	16.8	30.0	43.1	1 29.97	2	27.321		
	6507, B. A. C . .	19.3	32.0	45.2	3 32.17	3	39.447	0 6.95	42.137
	Hygea		39.1	53.0	3 39.12	2	27.222		
	6507, B. A. C. . .	33.2	45.2	59.0	5 45.80	3	39.360	+ 0 7.13	+ 42.032
	Hygea	39.5	53.1	6.2	20 5 52.93	2	27.240		

Corr. Chron. m. s. + 3 21.43

		α (h. m. s.)	δ (° ′ ″)
6507, B. A. C.		18 55 43.48	−21 57 14.41
Hygea — 6507, B. A. C.	h. m. s.	Δα (m. s.)	Δδ (′ ″)
Sid. T.	19 57 45.01	+ 0 6.92	+10 46.64
	Δρ	.01	.80
	p	+ .05	+ 2.96

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
1850. Sept. 21	Hygea	47.0	0.0	13.2	20 51 0.07	2 47.250			m. s.
	A. Z., 224, 121 . .	5.0	18.1	30.5	51 17.87	2 36.688	− 0 17.80	− 10.562	Corr. Chron. − 1 24.60
	Hygea	21.0	34.2	47.5	53 34.23	2 47.620			α δ; h. m. s. ° ′ ″
	A. Z., 224, 121 . .	39.0	52.0	5.0	53 52.00	2 36.722	0 17.77	10.898	A. Z., 224, 121, 18 58 6.42 −21 38 52.88
	Hygea	24.0	37.2	51.0	56 37.40	2 47.429			
	A. Z., 224, 121 . .	42.0	55.2	8.0	56 55.07	2 36.710	0 17.67	10.719	Hygea—A. Z., 224, 121, Δ α Δ δ
	Hygea	6.2	19.0	33.0	59 19.40	2 47.140			h. m. s. m. s. ′ ″
	A. Z., 224, 121 . .		37.0	50.0	59 36.90	2 36.580	0 17.50	10.560	Sid. T. 20 55 27.09 — 0 17.70 — 2 43.98; Δρ + .00 — .24
	Hygea	33.8	47.5	0.7	21 3 47.33	2 47.221			p + .09 + 2.79
	A. Z., 224, 121 . .	51.8	5.0		4 5.08	2 36.610	— 0 17.75	+ 10.611	
Sept. 22	A. Z., 224, 121 . .	19.0	32.0	45.1	19 57 32.03	1 34.189	+ 0 13.14	— 6.182	m. s.
	Hygea	32.5	45.0	58.0	57 45.17	1 40.371			Corr. Chron. — 1 20.46
	A. Z., 224, 121 . .	24.2	36.8	50.0	20 0 37.00	1 34.278	0 13.20	6.021	α δ; h. m. s. ° ′ ″
	Hygea	37.0	50.0	3.6	0 50.20	1 40.299			A. Z., 224, 121, 18 58 6.39 —21 38 52.91
	A. Z., 224, 121 . .	26.4	39.2	52.8	2 39.47	1 34.001	0 13.26	6.207	
	Hygea	39.2	53.0	6.0	2 52.73	1 40.208			Hygea—A. Z., 224, 121, Δ α Δ δ; h. m. s. m. s. ′ ″
	A. Z., 224, 121 . .	36.4	49.5	2.5	4 49.47	1 34.175	0 13.03	6.078	Sid. T. 20 7 29.81 + 0 13.38 — 1 33.01
	Hygea	49.0	2.4	16.0	4 2.50	1 40.253			Δρ .00 — .11
	A. Z., 224, 121 . .	37.3	50.2	3.0	6 50.17	1 33.950	0 13.33	6.106	p + .05 + 2.86
	Hygea	50.5	3.0	17.0	7 3.50	1 40.056			
	A. Z., 224, 121 . .	47.5	1.0	14.0	9 0.83	1 34.105	0 13.24	6.064	
	Hygea . . .	1.0	14.0	27.2	9 14.07	1 40.169			
	A. Z., 224, 121 . .	6.5	19.2	32.8	13 19.50	1 33.895	0 13.47	6.117	
	Hygea	19.0	33.0	46.9	13 32.97	1 40.012			
	A. Z., 224, 121 . .	5.9	19.0	32.0	15 18.97	1 34.062	0 13.73	6.038	
	Hygea	19.2	33.2	45.7	15 32.70	1 40.100			
	A. Z., 224, 121 . .	12.5	25.0	38.0	17 25 17	1 34.129	0 13.66	5.792	
	Hygea	25.3	39.2	52.0	17 38.83	1 39.921			
	A. Z., 224, 121 . .	23.5	36.0	49.2	19 36.23	1 34.094	+ 0 13.77	— 5.916	
	Hygea	37.0	50.0	3.0	19 50.00	1 40.010			
Sept. 23	A. Z., 224, 121 . .	38.1	51.5	4.2	20 44 51.26	1 46.432	+ 0 47.65	— 0.968	m. s.
	Hygea		39.0	52.0	45 38.91	1 47.400			Corr. Chron. — 1 18.85
	A. Z., 224, 121 . .	9.2	22.5	36.1	49 22.60	1 46.307	0 47.50	0.925	α δ
	Hygea		10.2	23.2	50 10.10	1 47.232			h. m. s. ° ′ ″
	A. Z., 224, 121 . .	0.4	13.5	27.0	51 13.63	1 46.330	0 47.60	0.910	A. Z., 224, 121, 18 58 6.37 —21 38 52.94
	Hygea	48.2	1.5	14.0	52 1.23	1 47.240			Hygea—A. Z., 224, 121, Δ α Δ δ; h. m. s. m. s. ′ ″
	A. Z., 224, 121 . .	48.2	1.5	15.0	54 1.57	1 46.212	0 47.50	1.033	Sid. T. 20 57 22.62 + 0 47.86 — 0 14.42
	Hygea	36.0	49.2	2.0	54 49.07	1 47.245			Δρ .00 .02
	A. Z., 224, 121 . .	42.2	55.0	8.2	55 55.13	1 46.262	0 47.93	1.028	p + .09 + 2.76
	Hygea	29.7	43.5	56.0	56 43.06	1 47.290			
	A. Z., 224, 121 . .	28.6	41.5	55.0	57 41.70	1 46.209	0 47.96	0.806	
	Hygea	16.5	29.5	43.0	58 29.66	1 47.015			
	A. Z., 224, 121 . .	34.2		0.5	21 0 47.35	1 46.309	0 48.15	0.911	
	Hygea	22.8		49.0	1 35.50	1 47.220			
	A. Z., 224, 121 . .	0.0	13.5	26.2	21 3 13.23	1 46.248	+ 0 47.94	— 0.870	
	Hygea	48.1	1.4	14.0	4 1.17	1 47.118			

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Sept. 23	A. Z., 224, 121 - -	43. 2	57. 0	10. 0	21 4 56. 73	1 46. 020	+ 0 48. 24	— 0. 955
	Hygea - - - - -	31. 7	45. 2	58. 0	5 44. 97	1 46. 975		
	A. Z., 224, 121 - -	39. 5	53. 2	6. 0	6 52. 90	1 46. 110	+ 0 48. 17	— 0. 978
	Hygea - - - - -	28. 0	41. 2	54. 0	7 41. 07	1 47. 088		
Sept. 30	6548, B. A. C. - -	56. 2	9. 5	22. 0	20 35 9. 23	1 44. 528	+ 2 25. 77	— 55. 152
	Hygea - - - - -	22. 0	35. 0	48. 0	37 35. 00	3 39. 600		
	6548, B. A. C. - -	5. 2		31. 0	42 18. 10	1 44. 537	2 25. 90	54. 923
	Hygea - - - - -	31. 0	44. 0	57. 0	44 44. 00	3 39. 380		
	6548, B. A. C. - -	3. 4	16. 5	29. 2	47 16. 37	1 44. 502	2 25. 83	54. 956
	Hygea - - - - -	29. 0	42. 2	55. 0	49 42. 20	3 39. 378		
	6548, B. A. C. - -	59. 4	12. 8	25. 5	51 12. 57	1 44. 479	2 25. 43	54. 927
	Hygea - - - - -	24. 8	38. 2	51. 0	53 38. 00	3 39. 326		
	6548, B. A. C. - -	25. 3	39. 1	52. 0	55 38. 80	1 44. 431	2 26. 30	54. 678
	Hygea - - - - -	52. 0	5. 0		58 5. 10	3 39. 029		
	6548, B. A. C. - -	18. 2	30. 9	44. 2	59 31. 10	1 44. 255	+ 2 26. 10	— 54. 927
	Hygea - - - - -	44. 2	57. 2	10. 2	21 1 57. 20	3 39. 102		
Oct. 1	6548, B. A. C. - -	29. 4	42. 5	55. 2	20 9 42. 37	1 42. 929	+ 3 7. 20	— 49. 288
	Hygea - - - - -	36. 5	49. 2	3. 0	12 49. 57	3 32. 137		
	6548, B. A. C. - -	7. 1	19. 8	32. 9	14 19. 60	1 42. 970	3 6. 97	49. 208
	Hygea - - - - -	13. 5	26. 5	39. 7	17 26. 57	3 32. 098		
	6548, B. A. C. - -	11. 5	24. 2	38. 2	19 24. 63	1 42. 979	3 6. 94	49. 079
	Hygea - - - - -	18. 5	31. 5	44. 7	22 31. 57	3 31. 978		
	6548, B. A. C. - -	45. 7	58. 5	12. 0	24. 58. 73	1 42. 808	3 7. 27	49. 101
	Hygea - - - - -	53. 0	6. 0	19. 0	28 6. 00	3 31. 829		
	6548, B. A. C. - -	29. 5	43. 2	56. 3	29 43. 00	1 42. 815	3 7. 07	49. 080
	Hygea - - - - -	37. 2	50. 0	3. 0	32 50. 07	3 31. 815		
	6548, B. A. C. - -	56. 2		23. 2	35 9. 70	1 42. 773	3 7. 37	49. 086
	Hygea - - - - -	4. 2	17. 0	30. 0	38 17. 07	3 31. 779		
	6548, B. A. C. - -	21. 5	34. 2	47. 5	39 34. 40	1 42. 729	3 7. 00	49. 101
	Hygea - - - - -	28. 2	42. 0	55. 0	42 41. 40	3 31. 750		
	6548, B. A. C. - -	50. 0	3. 4	16. 7	44 3. 43	1 42. 765	+ 3 7. 57	— 48. 995
	Hygea - - - - -	58. 0	11. 0	24. 0	47 11. 00	3 31. 680		
Oct. 2	6548, B. A. C. - -	55. 7	8. 9	22. 2	20 15 8. 93	1 39. 542	+ 3 50. 07	— 42. 950
	Hygea - - - - -	46. 0		12. 0	18 59. 00	3 22. 412		
	6548, B. A. C. - -	52. 3	5. 4	18. 3	25 5. 33	1 39. 422	3 50. 67	43. 278
	Hygea - - - - -	43. 0	56. 0	9. 0	28 56. 00	2 52. 533		
	6548, B. A. C. - -	15. 3	28. 2	41. 3	30 28. 26	1 39. 300	3 51. 21	43. 250
	Hygea - - - - -	6. 2	19. 2	33. 0	34 19. 47	2 52. 383		
	6548, B. A. C. - -	8. 2	21. 4	34. 3	36 21. 30	1 39. 297	3 50. 20	43. 193
	Hygea - - - - -	58. 0	11. 5	25. 0	40 11. 50	2 52. 323		
	6548, B. A. C. - -	52. 2	4. 7	18. 0	42 4. 97	1 39. 327	3 50. 13	43. 268
	Hygea - - - - -	42. 0	55. 1	8. 2	45 55. 10	2 52. 428		
	6548, B. A. C. - -	39. 2	52. 2	5. 1	47 52. 17	1 39. 380	+ 3 50. 96	— 43. 040
	Hygea - - - - -	30. 2	43. 0	56. 2	51 43. 13	2 52. 253		

RESULTS.

Sept. 30.

Corr. Chron. — 0 m. 56. 11 s.

	α (h. m. s.)	δ (° ′ ″)
6548, B. A. C.	19 1 52. 36	—21 15 15. 45

Hygea—6548, B. A. C.	h. m. s.	$\Delta\alpha$ (m. s.)	$\Delta\delta$ (′ ″)
Sid. T.	20 50 0. 81	+ 2 25. 89	—14 4. 20
$\Delta\rho$		— . 03	— 1. 23
p		+ . 08	+ 2. 60

Oct. 1.

Corr. Chron. — 0 m. 52. 66 s.

	α (h. m. s.)	δ (° ′ ″)
6548, B. A. C.	19 1 52. 34	—21 15 15. 48

Hygea—6548, B. A. C.	h. m. s.	$\Delta\alpha$ (m. s.)	$\Delta\delta$ (′ ″)
Sid. T.	20 29 21. 50	+ 3 7. 17	—12 34. 90
$\Delta\rho$		— . 61	— . 95
p		+ . 06	+ 2. 62

Oct. 2.

Corr. Chron. — 0 m. 47. 59 s.

	α (h. m. s.)	δ (° ′ ″)
6548, B. A. C.	19 1 52. 33	—21 15 15. 51

Hygea—6548, B. A. C.	h. m. s.	$\Delta\alpha$ (m. s.)	$\Delta\delta$ (′ ″)
Sid. T.	20 35 53. 11	+ 3 50. 54	—11 3. 38
$\Delta\rho$		— . 01	+ . 86
p		+ . 07	+ 2. 61

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
Oct. 3	Hygea - - - -	45. 5	59. 0	12. 0	20 50 58. 83	3	25. 129			
	1351, Madras - -	40. 0	53. 1	6. 2	53 53. 10	2	35. 778	— 2 54. 27	— 19. 263	
	Hygea - - - -	4. 2		30. 0	21 2 17. 10	3	25. 081			m. s. Corr. Chron. —0 42. 13
	1351, Madras - -	58. 1	11. 0	24. 7	5 11. 27	2	35. 559	2 54. 17	19. 434	
	Hygea - - - -	26. 9	39. 7	53. 0	6 39. 87	3	24. 919			α δ h. m. s. ° ′ ″
	1351, Madras - -	20. 0	33. 2	46. 2	9 33. 13	2	35. 560	2 53. 26	19. 271	1351, Madras, 19 8 22. 00 —21 19 47. 69
	Hygea - - - -	21. 0	34. 2	46. 5	15 33. 90	3	24. 721			Hygea—1351, Madras, Δ α Δ δ
	1351, Madras - -	14. 1	27. 0	40. 0	18 27. 03	2	35. 402	2 53. 13	19. 231	h. m. s. m. s. ′ ″
	Hygea - - - -	13. 5	26. 8	39. 5	21 26. 60	3	24. 479			Sid. T. 21 17 46. 13 — 2 53. 39 — 4 56. 86
	1351, Madras - -	6. 7	19. 2	33. 0	24 19. 63	2	35. 322	2 53. 03	19. 069	Δρ + . 02 — . 45
	Hygea - - - -	42. 5	56. 0	9. 0	25 55. 83	3	24. 492			p + . 09 + 2. 52
	1351, Madras - -	35. 7	49. 1	2. 0	28 48. 93	2	35. 132	2 53. 10	19. 272	
	Hygea - - - -	7. 2	20. 0	33. 0	30 20. 07	3	24. 170			
	1351, Madras - -	0. 5	13. 5	26. 2	33 13. 40	2	35. 150	2 53. 33	19. 932	
	Hygea - - - -	21. 0	33. 7	47. 0	34 33. 90	3	34. 095			
	1351, Madras - -	13. 4	26. 8	40. 0	37 26. 73	2	34. 961	— 2 52. 83	— 19. 046	
Oct. 4	Hygea - - - -	45. 5	59. 0	12. 1	20 13 58. 87	2	47. 460			
	1351, Madras - -	56. 2	9. 5	22. 0	16 9. 23	2	34. 092	— 2 10. 36	— 13. 368	
	Hygea - - - -	59. 4		26. 2	18 12. 80	2	47. 231			m. s.
	1351, Madras - -	9. 7	23. 1	35. 7	20 22. 83	2	34. 109	2 10. 03	13. 122	Corr. Chron. —0 38. 10
	Hygea - - - -	24. 0	37. 4	50. 3	22 37. 23	2	47. 248			
	1351, Madras - -	34. 1	47. 3	0. 3	24 47. 23	2	34. 020	2 10. 00	13. 228	α δ
	Hygea - - - -	2. 7	16. 0	29. 1	26 15. 93	2	47. 209			h. m. s. ° ′ ″ 1351, Madras, 19 8 22. 02 —21 19 47. 73
	1351, Madras - -	12. 4	25. 1	39. 0	28 25. 50	2	33. 950	2 9. 57	13. 259	
	Hygea - - - -	43. 0	56. 0	9. 3	34 56. 10	2	46. 609			Hygea—1351, Madras, Δ α Δ δ h. m. s. m. s. ′ ″
	1351, Madras - -	53. 1	6. 0	19. 5	37 6. 20	2	33. 491	2 10. 10	13. 118	Sid. T. 20 34 54. 91 — 2 9. 62 — 3 21. 54
	Hygea - - - -	24. 1	37. 0	50. 2	38 37. 10	2	46. 530			Δρ . 00 — . 26
	1351, Madras - -	33. 1	46. 5	59. 2	40 46. 26	2	33. 460	2 9. 16	13. 070	p + . 06 + 2. 58
	Hygea - - - -	22. 2		48. 0	43 35. 10	2	46. 690			
	1351, Madras - -	31. 0	44. 0	56. 5	45 43. 83	2	33. 705	2 8. 73	12. 985	
	Hygea - - - -	38. 7	52. 0	5. 0	47 51. 90	2	46. 520			
	1351, Madras - -	48. 5	1. 5	14. 3	50 1. 43	2	33. 568	2 9. 53	12. 952	
	Hygea - - - -	25. 1	38. 0	51. 2	52 38. 10	2	46. 500			
	1351, Madras - -	34. 2	47. 5	0. 7	53 47. 47	2	33. 470	2 9. 37	13. 030	
	Hygea - - - -	34. 0	47. 0	0. 0	56 47. 00	2	46. 419			
	1351, Madras - -	43. 5	56. 0	9. 5	58 56. 33	2	33. 420	— 2 9. 33	— 12. 999	
Oct. 6	Hygea - - - -	59. 2	12. 9	26. 0	23 12. 70	2	31. 300			
	1351, Madras - -	36. 0	49. 6	3. 1	23 49. 57	2	31. 098	— 0 36. 87	— 0. 202	
	Hygea - - - -	44. 3	57. 0	10. 0	24 57. 10	2	31. 421			
	1351, Madras - -		34. 1	47. 5	25 34. 40	2	31. 080	0 37. 30	0. 341	
	Hygea - - - -	31. 5	44. 0	57. 0	26 44. 17	2	31. 381			
	1351, Madras - -	7. 2	20. 7	34. 0	27 20. 63	2	31. 151	0 36. 46	0. 230	
	Hygea - - - -	4. 2	17. 0	29. 2	28 16. 80	2	31. 250			
	1351, Madras - -	40. 9	54. 0	7. 0	28 53. 97	2	31. 060	0 37. 17	0. 190	
	Hygea - - - -	2. 5	38. 0	51. 2	33 38. 07	2	29. 111			
	1351, Madras - -		15. 2	28. 3	34 15. 22	2	29. 065	— 0 37. 15	— 0. 046	(Continued.)

HYGEA.

	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.	RESULTS.
		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
6	Hygea - - - - -	31.0	44.0	57.2	20 35 44.07	2	29.222			
	1351, Madras - -	9.2		34.0	36 20.60	2	29.108	— 0 36.53	— 0.104	Corr. Chron. — 28.24 s.
	Hygea - - - - -	24.2	37.0	50.2	37 37.13	2	29.105			α (h. m. s.) δ (° ′ ″)
	1351, Madras - -	0.5	13.6	27.1	38 13.73	2	29.068	0 36.60	0.037	1351, Madras, 19 8 21.96 —21 19 47.75
	Hygea - - - - -	13.6	27.0	40.0	39 26.87	2	29.208			
	1351, Madras - -	50.0	3.2	16.5	40 3.23	2	29.099	0 36.36	— 0.109	Hygea—1351, Madras, Δα Δδ
	Hygea - - - - -	59.3	12.3	25.1	41 12.23	2	29.052			h. m. s. m. s. ′ ″
	1351, Madras - -	35.1	49.0	2.0	41 48.70	2	29.101	0 36.47	+ 0.049	Sid. T. 20 36 54.41 — 0 36.55 — 0 1.20
										Δρ .00 .00
										p + .06 + 2.55
	Hygea - - - - -	47.0	0.2	13.5	42 0.23	2	29.000			
	1351, Madras - -	23.0	36.5	49.7	42 36.40	2	29.005	0 36.17	+ 0.005	
	Hygea - - - - -	25.0	38.0	51.2	44 38.07	2	29.012			
	1351, Madras - -	0.8	14.2	27.1	45 14.03	2	28.961	0 35.96	— 0.051	
	Hygea - - - - -	58.2	11.4	25.0	46 11.53	2	28.962			
	1351, Madras - -		48.1	1.2	46 47.98	3	28.952	0 36.45	— 0.010	
	Hygea - - - - -	49.1	2.0	15.2	49 2.10	2	28.665			
	1351, Madras - -	25.1	38.0	51.2	49 38.10	2	28.751	0 36.00	+ 0.086	
	Hygea - - - - -	23.2	36.1	49.0	50 36.10	2	28.622			
	1351, Madras - -	59.2	12.5	25.3	51 12.33	2	28.714	— 0 36.23	+ 0.092	
7	1351, Madras - -	57.2	10.2	23.0	20 12 10.13	2	28.699	+ 0 11.00	+ 6.658	
	Hygea - - - - -	8.0	21.0	34.4	12 21.13	2	22.041			Corr. Chron. — 24.55 s.
	1351, Madras - -	3.3	16.3	29.0	14 16.20	2	28.482	0 10.80	6.572	α (h. m. s.) δ (° ′ ″)
	Hygea - - - - -	14.2	27.0		14 27.00	2	21.910			1351, Madras, 19 8 21.93 —21 19 47.79
	1351, Madras - -	34.2	47.0	0.2	16 47.13	2	28.429	0 10.94	6.548	
	Hygea - - - - -	45.2	58.0	11.0	16 58.07	2	21.881			Hygea—1351, Madras, Δα Δδ
	1351, Madras - -	30.7	44.1	57.0	18 43.93	2	28.469	0 11.00	6.518	h. m. s. m. s. ′ ″ Sid. T. 20 21 43.61 + 0 11.08 + 1 40.86
	Hygea - - - - -	42.3	55.0	7.5	18 54.93	2	21.951			Δρ .00 .12
	1351, Madras - -	57.5	11.0	24.5	20 11.00	2	28.501	0 11.07	6.561	p + .05 + 2.57
	Hygea - - - - -	9.0	22.0	35.2	20 22.07	2	21.940			
	1351, Madras - -	1.3		28.0	23 14.65	2	28.480	0 11.02	6.578	
	Hygea - - - - -	12.5	26.0	38.5	23 25.67	2	21.902			
	1351, Madras - -	24.3	37.5	51.0	28 37.60	2	28.558	0 11.57	6.457	
	Hygea - - - - -	36.0	49.0	2.5	28 49.17	2	22.101			
	1351, Madras - -	34.2	47.0	1.0	30 47.40	2	28.560	0 10.90	6.639	
	Hygea - - - - -	45.0	58.4	11.5	30 58.30	2	21.921			
	1351, Madras - -	32.0	46.0	59.0	32 45.67	2	28.598	+ 0 11.40	+ 6.528	
	Hygea - - - - -	44.2	57.0	10.0	32 57.07	2	22.070			
8	1351, Madras - -	14.0	27.2	40.0	20 22 27.07	2	32.230	+ 1 0.16	+ 13.230	Corr. Chron. — 20.04 s.
	Hygea - - - - -	14.2	27.5	40.0	23 27.23	2	19.000			
	1351, Madras - -	43.5	56.3	9.7	24 56.50	2	32.335	1 0.50	13.475	α (h. m. s.) δ (° ′ ″)
	Hygea - - - - -		57.0	10.0	25 57.00	2	18.860			1351, Madras, 19 8 21.90 —21 19 47.82
	1351, Madras - -	15.7	29.0	42.0	28 28.90	2	32.280	1 0.20	13.302	
	Hygea - - - - -	16.0	29.0	42.3	29 29.10	2	18.978			Hygea—1351, Madras, Δα Δδ
	1351, Madras - -	53.3	6.0	19.0	31 6.10	2	32.141	1 0.33	13.313	h. m. s. m. s. ′ ″ Sid. T. 20 35 55.06 + 1 0.57 + 3 26.01
	Hygea - - - - -	53.5	6.8	19.0	32 6.43	2	18.828			Δρ .00 .26
	1351, Madras - -	56.2	9.5	22.7	20 37 0.37	2	32.179	+ 1 0.63	+ 13.439	p + .06 + 2.50
	Hygea - - - - -		9.7		38 1.00	2	18.740			(Continued.)

HYGEA.

DATE.	OBJECTS.	Observed times of transit.				Mic.		Planet—Star.		RESULTS.
		A.	B.	C.	Mean.			Δα	Δ mic.	
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
Oct. 8	1351, Madras - -	11.2	24.2	37.0	20 39 24.13	2	32.079	+ 1 0.64	+ 13.369	
	Hygea - - - - - -	11.7	24.6	38.0	40 24.77	2	18.710			
	1351, Madras - -	43.2	56.0	9.0	41 56.07	2	32.130	1 1.06	13.580	
	Hygea - - - - - -	44.1	57.2	10.0	42 57.13	2	18.550			
	1351, Madras - -	33.0	46.2	59.4	44 46.20	2	32.035	1 0.83	13.477	
	Hygea - - - - - -	33.9	47.2	0.0	43 47.03	2	18.558			
	1351, Madras - -	52.3	5.6	18.2	47 5.37	2	31.960	+ 1 0.83	+ 13.450	
	Hygea - - - - - -	53.2	6.0	19.4	48 6.20	2	18.510			
Oct. 9	1351, Madras - -	53.3	6.2	19.2	21 50 6.23	2	51.328	+ 1 51.50	+ 20.886	s. Corr. Chron. — 15.40
	Hygea - - - - - -	45.0	57.2	11.0	51 57.73	1	60.609			
	1351, Madras - -	17.2	30.0	43.2	22 0 30.13	2	51.228	1 51.87	20.715	α δ h. m. s. ° ′ ″
	Hygea - - - - - -	9.0	22.0	35.0	2 22.00	1	60.680			1351, Madras, 19 8 21.88 —21 19 47.86
	1351, Madras - -	34.7	47.3	1.3	7 47.76	2	51.161	1 51.64	20.668	Hygea — 1351, Madras, Δα Δδ
	Hygea - - - - - -	26.7	39.5	52.0	9 39.40	1	60.660			h. m. s. m. s. ′ ″
	1351, Madras - -	36.0	49.2	2.0	11 49.07	2	51.051	+ 1 52.00	+ 20.618	Sid. T. 22 4 9.65 + 1 51.75 + 5 18.49 Δρ .03 .65
	Hygea - - - - - -	28.0	41.0	54.2	13 41.07	1	60.600			p + .12 + 2.33
Oct. 14	1719, G. 12 Y. - -	16.2	29.3	42.0	9 1 29.16	1	50.236	+ 0 49.84	— 38.409	s.
	Hygea - - - - - -		19.0	32.0	2 19.01	3	28.565			Corr. Chron. + 41.23
	1719, G. 12 Y. - -	27.2	40.0	53.5	4 40.23	2	19.628	0 50.80	38.364	α δ
	Hygea - - - - - -		31.2	43.9	5 31.03	3	28.080			h. m. s. ° ′ ″ 1719, G. 12 Y., 19 13 49.14 —20 54 56.81
	1719, G. 12 Y. - -	31.8	45.3	58.4	6 45.17	2	19.379	0 51.65	38.453	Hygea — 1719, G. 12 Y., Δα Δδ
	Hygea - - - - - -		37.0	50.0	7 36.82	3	27.920			M. T.
	1719, G. 12 Y. - -	7.4	20.7	33.6	9 20.57	2	19.401	0 51.10	38.313	h. m. s. m. s. ′ ″ 9 8 26.18 + 0 50.90 — 9 50.18
	Hygea - - - -		11.5	25.0	10 11.67	3	27.802			Δt + .14
	1719, G. 12 Y. - -	2.2		28.0	12 15.10	2	18.892	+ 0 51.10	— 38.460	Δρ — .11 — 1.90
	Hygea - - - - - -		6.2	19.2	13 6.20	3	27.440			p + .13 + 2.21
Oct. 15	1719, G. 12 Y. - -	34.6	48.2	0.8	7 19 47.87	2	18.595	+ 1 41.26	— 31.077	s.
	Hygea - - - - - -	16.2	29.2	42.0	21 29.13	3	19.760			Corr. Chron. +38.72
	1719, G. 12 Y. - -	29.2	42.7	55.7	23 42.53	2	18.649	1 41.87	31.409	α δ h. m. s. ° ′ ″
	Hygea - - - - - -	11.5	24.2	37.5	25 24.40	3	20.146			1719, G. 12 Y., 19 13 49.12 — 20 54 56.83
	1719, G. 12 Y. - ·	1.3	14.2	28.1	27 14.53	2	18.680	1 42.37	31.353	Hygea — 1719, G. 12 Y., Δα Δδ
	Hygea - - - - - -	44.2	57.0	9.5	28 56.90	3	20.121			M. T.
	1719, G. 12 Y. - -	12.5	25.8	39.2	30 25.83	2	18.601	+ 1 42.65	— 31.190	h. m. s. m. s. ′ ″ 7 27 38.45 +1 42.04 — 8 0.40
	Hygea - - - - - -	55.0		22.0	32 8.48	3	19.879			Δt + .28 Δρ — .02 — .64 p + .07 + 2.40
Oct. 16	1719, G. 12 Y. - -	9.6		35.7	6 31 22.65	2	24.704	+ 2 35.68	— 23.488	
	Hygea - - - - - -	46.0	58.0	11.0	33 58.33	3	18.280			s.
	1719, G. 12 Y. - -	23.6	36.2	49.2	36 36.33	2	24.670	2 36.50	— 23.455	Corr. Chron. + 37.57
	Hygea - - - - . -	0.0	12.5	26.0	39 12.83	3	18.213			α δ h. m. s. ° ′ ″
	1719, G. 12 Y. - -	16.0	29.5	42.7	42 29.40	2	24.850	3 52.65	+ 39.217	1719, G. 12 Y., 19 13 49.10 — 20 54 56.83
	Hygea - - - - - -	53.4		19.5	45 6.45					
	(° k) . - - - - -		22.5	35.0	46 22.05	1	15.800			Hygea — 1719, G. 12 Y. Δα Δδ
	1719, G. 12 Y. - -	28.2	40.8	54.0	6 53 41.00	2	24.539	+ 3 53.10	+ 39.017	Comp. with k. M. T. h. m. s. m. s. ′ ″
	(° k) - - - - - -	21.2	34.1	47.0	57 34.10	1	15.688			6 37 12.95 + 2 36.09 — 6 0.73 Δt + .42 Δρ — .01 — .41 p + .04 + 2.45

HYGEA.

Date.	Objects.	A.	B.	C.	Mean.	w.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
19	(° k) - - - - - -	12. 5	25. 1	38. 0	7 13 25. 20	1	45. 081		
	(° 6, 1857) - - -		47. 0	0. 0	14 47. 13	3	43. 452	− 1 21. 93	+ 58. 451
	(° k) - - - - - -	46. 2	59. 1	13. 0	27 59. 43	1	41. 494		
	(° 6, 1857) - - -	8. 0	21. 2	34. 0	28 21. 06	3	39. 927	1 21. 63	58. 513
	(° 9) - - - - -	43. 0	57. 0	9. 0	32 56. 33	1	35. 949		
	(° k) - - - - - -	8. 5	21. 7	35. 2	33 21. 80	1	41. 420		
	(° 6, 1857) - - -	30. 5	43. 0	56. 0	34 43. 16	3	39. 955	1 21. 06	58. 615
	(° k) - - - - - -	52. 7	6. 0	19. 3	36 6. 00	1	41. 390		
	(° 6, 1857) - - -	14. 3	27. 7	41. 0	37 27. 67	3	39. 910	1 21. 67	58. 600
	(° k) - - - - - -	51. 7	4. 4	18. 2	39 4. 76	1	41. 268		
	(° 6, 1857) - - -	13. 6	26. 6		40 26. 77	3	39. 910	− 1 22. 01	+ 58. 722
21	(° k) - - - - - -	26. 2		52. 0	6 49 39. 10	1	42. 433	+ 3 35. 63	− 19. 369
	Hygea - - - - -	1. 2	15. 0	28. 0	53 14. 73	2	31. 635		
	(° k) - - - - - -	52. 3	5. 0	18. 2	7 4 5. 17	1	42. 211	3 35. 83	19. 405
	Hygea - - - - -	28. 0	41. 0	54. 0	7 41. 00	2	31. 449		
	(° k) - - - - - -	45. 7	59. 1	11. 9	13 58. 90	1	41. 839	+ 3 36. 27	− 19. 267
	Hygea - - - - -	22. 0	35. 0	48. 5	17 35. 17	2	30. 939		
22	(° k) - - - - - -	52. 0	5. 2	18. 5	6 35 5. 23	1	44. 849	− 5 33. 70	− 9. 207
	Hygea - - - - -	28. 0	41. 0	54. 0	39 41. 00	2	25. 269		
	36878, Lalande - -			52. 0	40 38. 93	1	35. 642	0 57. 93	19. 539
	Hygea - - - - -	31. 0	44. 0	58. 0	45 44. 33	2	25. 390		
	36878, Lalande - -	29. 1	42. 5	55. 7	46 42. 43	1	35. 666	0 58. 10	19. 636
	Hygea - - - - -	54. 1	7. 0	20. 0	49 7. 03	2	25. 105		
	36878, Lalande - -	51. 2	4. 4	18. 1	50 4. 57	1	35. 613	0 57. 54	19. 404
	Hygea - - - - -	16. 2	29. 3	42. 5	51 29. 33	2	25. 081		
	36878, Lalande - -	14. 4	27. 0	40. 5	52 27. 30	1	35. 540	0 57. 97	19. 453
	Hygea - - - - -	39. 3	52. 5	6. 0	55 52. 60	2	25. 068		
	36878, Lalande - -	37. 2	50. 2	3. 7	56 50. 37	1	35. 557	0 57. 77	19. 423
	Hygea - - - - -	57. 1		23. 7	58 10. 40	2	24. 949		
	36878, Lalande - -	54. 5	7. 9	21. 0	59 7. 89	1	35. 475	0 57. 40	19. 386
	Hygea - - - - -	24. 1	37. 0	50. 9	7 0 37. 33	2	24. 840		
	36878, Lalande - -	21. 2	34. 8	48. 3	1 34. 77	1	35. 482	0 57. 44	19. 270
	Hygea - - - - -	24. 4	37. 1	50. 5	2 37. 33	2	24. 809		
	36878, Lalande - -	21. 5	34. 3	47. 8	3 34. 53	1	35. 468	0 57. 20	19. 253
	Hygea - - - - -	53. 0	6. 0	19. 2	5 6. 06	2	24. 687		
	36878, Lalande - -	50. 3	3. 7	17. 5	6 3. 83	1	35. 302	− 0 57. 77	− 19. 297
29	A. Z., 310, 173 - -	46. 0	59. 0	12. 0	7 21 59. 00	3	40. 820	+ 0 2. 50	+ 32. 582
	Hygea - - - - -		1. 0	15. 0	22 1. 50	2	38. 150		
	A. Z., 310, 173 - -	59. 0		25. 0	28 12. 00	3	40. 772	0 2. 00	32. 564
	Hygea - - - - -	1. 0		27. 0	28 14. 00	2	38. 120		
	A. Z., 310, 173 - -	53. 0		20. 0	33 6. 50	3	40. 530	0 3. 25	32. 644
	Hygea - - - - -	56. 0		23. 5	33 9. 75	2	37. 798		
	A. Z., 310, 173 - -	48. 0		14. 0	37 1. 00	3	40. 399	0 3. 60	32. 611
	Hygea - - - - -	51. 0		17. 0	37 4. 00	2	37. 700		
	A. Z., 310, 173 - -	9. 0		35. 0	38 22. 00	3	40. 210	+ 0 4. 00	+ 32. 560
	Hygea - - - - -	13. 0		39. 0	38 26. 00	2	37. 562		

RESULTS.

19:

Corr. Chron. (m. s.) + 0 33. 73

	α (h. m. s.)	δ (° ′ ″)
(° 6, 1857,)	19 19 4. 55	−21 59 58. 66

(° k)—(° 6, 1857,)

M. T. (h. m. s.)		Δ α (m. s.)	Δ δ (′ ″)
7 30 33. 17		− 1 21. 66	+15 00. 33
	Δt	− . 22	
	Δρ	+ . 65	+ 1. 31

22:

Corr. Chron. (m. s.) + 0 29. 88

	α (h. m. s.)	δ (° ′ ″)
36878, Lalande,	19 23 17. 23	−20 42 34. 34

Hygea—36878, Lalande,

M. T. (h. m. s.)		Δ α (m. s.)	Δ δ (′ ″)
6 54 46. 04		− 0 57. 68	− 4 58. 27
	Δt	− . 16	
	Δρ	+ . 01	− . 38
	p	+ . 06	+ 2. 40

29:

Corr. Chron. (m. s.) − 0 23. 47

	α (h. m. s.)	δ (° ′ ″)
A. Z., 310, 173,	19 29 43. 58	−20 38 14. 65

Hygea—A. Z., 310, 173,

M. T. (h. m. s.)		Δ α (m. s.)	Δ δ (′ ″)
7 33 52. 46		+ 0 3. 01	+ 8 21. 12
	Δt	+ . 00	
	Δρ	− . 03	+ . 80
	p	+ . 09	+ 2. 16

(Continued.)

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.
		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
1850. Oct. 29	A. Z., 310, 173 . .	42.0	55.0	9.0	7 41 55.33	3	40.150	+ 0 3.34	+ 32.670
	Hygea	46.0	59.0	71.0	41 58.67	2	37.392		
Nov. 1	A. Z., 310, 173 . .	47.9		14.7	6 44 1.30	3	46.201	+ 3 20.70	+ 64.590
	Hygea	9.0	22.0	35.0	47 22.00	1	41.691		
	A. Z., 310, 173 . .	39.7	53.0	6.5	48 53.07	3	46.127	3 21.53	64.692
	Hygea	1.5		27.7	52 14.60	1	41.515		
	A. Z., 310, 173 . .	13.0	25.8	39.1	54 25.96	3	46.046	+ 3 21.30	+ 64.895
	Hygea	34.2	47.5	0.1	57 47.26	1	41.231		
Nov. 2	Hygea	57.5	11.0	23.7	6 22 10.73	3	40.835		
	6760, B. A. C. . .	23.2	36.4	49.5	25 36.37	1	54.371	— 3 25.64	— 46.544
	Hygea	29.3		56.0	34 42.65	3	40.650		
	6760, B. A. C. . .	54.7	8.1	21.0	38 7.93	1	54.282	3 25.28	46.448
	Hygea	28.0		54.6	40 41.30	3	40.460		
	6760, B A. C. . .	52.7	5.6	18.7	44 5.67	1	54.150	3 24.37	46.390
	Hygea	20.0	32.5	46.0	46 32.83	3	40.262		
	6760, B. A. C. . .	44.6	58.1	11.4	49 58.03	1	53.972	3 25.20	46.370
	Hygea	19.3	32.7	45.8	51 32.60	3	40.093		
	6760, B. A. C. . .	43.7	57.1	10.6	54 57.13	1	53.920	3 24.53	46.253
	Hygea	1.9		28.2	7 13 15.05	3	39.718		
	6760, B. A. C. . .	25.2	38.6	51.3	16 38.37	1	53.473	3 23.32	46.325
	Hygea	54.3		20.3	19 7.30	3	39.489		
	6760, B. A. C. . .	16.9	30.2	43.6	22 30.23	1	53.470	3 22.93	46.099
	Hygea	39.1		5.7	24 52.40	3	39.105		
	6760, B. A. C. . .	2.0	15.7	28.7	28 15.47	1	53.272	3 23.07	45.913
	Hygea	36.2	49.1	2.5	31 49.27	3	38.891		
	6760, B. A. C. . .	58.6	11.6	24.8	35 11.67	1	53.001	— 3 22.40	— 45.970
Nov. 4	Hygea	16.2	29.5	43.1	6 22 29.60	2	46.771		
	6760, B. A. C. . .	24.6	37.8	51.0	23 37.80	1	53.480	— 1 8.20	— 23.458
	Hygea	37.1	50.2	2.7	24 50.00	2	46.710		
	6760, B. A. C. . .	44.8	58.2	11.3	25 58.10	1	53.421	1 8.10	23.456
	Hygea	1.4	20.0	43.3	27 20.23	2	46.875		
	6760, B. A. C. . .	15.1	28.6	41.2	28 28.30	1	53.500	1 8.07	23.542
	Hygea	14.2	27.0	40.0	30 27.07	2	46.742		
	6760, B. A. C. . .	21.5	34.3	48.0	31 34.60	1	53.362	1 7.53	23.547
	Hygea	31.0	44.5	57.5	32 44.33	2	46.591		
	6760, B. A. C. . .	39.2	52.2	5.5	33 52.33	1	53.345	1 8.00	23.413
	Hygea	58.2		24.0	35 11.10	2	46.585		
	6760, B. A. C. . .	5.2	19.2	32.3	36 18.90	1	53.339	1 7.80	23.413
	Hygea	31.5	44.2	57.5	37 44.40	2	46.443		
	6760, B. A. C. . .	39.2	52.2	5.6	38 52.33	1	53.249	1 7.93	23.361
	Hygea	20.0		46.0	40 33.00	2	46.375		
	6760, B. A. C. . .	27.2	40.3	53.3	41 40.26	1	53.190	1 7.26	23.352
	Hygea	14.0	27.2	40.0	45 27.07	2	46.510		
	6760, B. A. C. . .	21.3	35.1	48.2	46 34.87	1	53.295	1 7.80	23.382
	6760, B. A. C. . .	44.6	57.0	10.0	47 57.20	2	46.548		
	Hygea	51.2	4.5	17.3	49 4.33	1	53.315	— 1 7.13	— 23.400

RESULTS.

Corr. Chron. + 0 21.81 (m. s.)

	α (h. m. s.)	δ (° ′ ″)
A. Z, 310, 173,	19 29 43.53	—20 38 14.36

Hygea — A. Z., 310, 173, M. T. (h. m. s.)		Δα (m. s.)		Δδ (′ ″)
6 52 49.76		+ 3 21.18		+16 34.82
	Δt	.55		
	Δρ	.04	+	1.40
	p	+ .08	+	2.18

Corr. Chron. + 0 20.93 (m. s.)

	α (h. m. s.)	δ (° ′ ″)
6760, B. A. C.	19 37 37.91	—20 6 51.43

Hygea — 6760, B. A. C. M. T. (h. m. s.)		Δα (m. s.)		Δδ (′ ″)
6 58 39.17		— 3 24.08		—11 50.94
	Δt	— .55		
	Δρ	+ .05	—	1.00
	p	+ .08	+	2.15

Corr. Chron. + 0 19.02 (m. s.)

	α (h. m. s.)	δ (° ′ ″)
6760, B. A. C.,	19 37 37.89	—20 6 51.49

Hygea — 6760, B. A. C., M. T. (h. m. s.)		Δα (m. s.)		Δδ (′ ″)
6 34 47.42		— 1 7.78		— 6 0.14
	Δt	— .18		
	Δρ	+ .01	—	.48
	p	+ .10	+	2.17

HYGEA.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.	RESULTS.
50.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
5	6760, B. A. C. - -	23.0	36.0	49.0	6 22 36.00	2	34.780	+ 0 2.13	− 11.661	s.
	Hygea - - - -	25.1	38.3	51.0	22 38.13	2	46.441			Corr. Chron. + 18.25
	6760, B. A. C. - -	34.1	47.0	0.2	24 47.10	2	34.509	0 2.23	11.906	α δ
	Hygea - - - -	36.3	49.2	2.5	24 49.33	2	46.415			h. m. s. ° ' "
	6760, B. A. C. - -	39.5	52.0	5.2	26 52.23	2	34.640	0 1.94	11.735	6760, B. A. C. 19 37 37.87 −20 6 51.51
	Hygea - - - -	41.3	54.2	7.0	26 54.17	2	46.375			Hygea — 6760, B. A. C. Δα Δδ
	6760, B. A. C. - -	51.2	4.0	18.2	29 4.47	2	34.511	0 2.30	11.871	M. T. h. m. s. m. s. ' "
	Hygea - - - -	53.6	7.0	19.7	29 6.77	2	46.382			6 33 19.22 + 0 2.44 − 3 0.45
	6760, B. A. C. - -	2.0	16.0	29.0	31 15.67	2	34.601	0 2.50	11.729	Δρ − .01 − .23
	Hygea - - - -	4.5	18.5	31.5	31 18.17	2	46.330			p + .07 + 2.15
	6760, B. A. C. - -	13.5	27.5	40.0	34 27.00	2	34.372	0 2.17	11.920	
	Hygea - - - -	16.0	29.0	42.5	34 29.17	2	46.292			
	6760, B. A. C. - -	23.2	36.3	49.2	36 36.23	2	34.459	0 2.44	11.582	
	Hygea - - - -	25.3	39.0	51.7	36 38.67	2	46.041			
	6760, B. A. C. - -	33.2	46.2	0.0	38 46.47	2	34.457	0 2.63	11.685	
	Hygea - - - -	36.0	49.0	2.3	38 49.10	2	46.142			
	6760, B. A. C. - -	55.0	8.5	21.7	41 8.40	2	34.475	0 2.80	11.585	
	Hygea - - - -	58.2	11.2	24.2	41 11.20	2	46.060			
	6760, B. A. C. - -	58.5	11.7	25.0	44 11.73	2	34.196	+ 0 3.27	− 11.733	
	Hygea - - - -	2.7	14.2	28.1	44 15.00	2	45.929			s.
9	6760, B. A. C. - -	12.5	25.3	38.3	21 25.37	3	39.621	+ 4 45.63	+ 37.750	Corr. Chron. + 14.72
	Hygea - - - -	58.0	11.0	24.0	26 11.00	2	31.783			α δ h. m. s. ° ' "
	6760, B. A. C. - -	9.2	22.0	35.4	28 22.20	3	39.431	4 45.80	37.555	6760, B. A. C. 19 37 37.82 −20 6 51.62
	Hygea - - - -	55.0	8.0	21.0	33 8.00	2	31.788			Hygea — 6760, B. A. C. Δα Δδ
	6760, B. A. C. - -	40.5	33.2	6.0	35 53.23	3	39.292	4 45.84	37.532	M. T.
	Hygea - - - -	26.2	39.0	52.0	40 39.07	2	31.672			h. m. s. m. s. ' "
	6760, B. A. C. - -	27.4		53.5	46 40.45	3	38.910	+ 4 45.55	+ 37.824	6 38 5.74 + 4 45.71 + 9 35.51
	Hygea - - - -	13.0	26.0	39.0	51 26.00	2	30.998			Δt .75; Δρ .03 .82; p + .08 + 2.09
13	37873, Lalande - -	16.0	29.2	42.9	11 29.37	2	38.891	+ 0 35.73	− 12.259	
	Hygea - - - -	52.3	5.0	18.0	12 5.10	2	51.150			
	37873, Lalande - -	19.1	32.9	45.0	14 32.33	2	39.081	0 35.10	11.930	s.
	Hygea - - - -	54.3	7.1	20.9	15 7.43	2	51.011			Corr. Chron. + 12.64
	37873, Lalande - -	0.7	13.9	27.3	17 13.97	2	38.891	0 35.40	11.861	α δ
	Hygea - - - -		49.3	2.7	17 49.37	2	50.752			h. m. s. ° ' "
	37873, Lalande - -	35.2	48.9	2.0	18 48.70	2	38.779	0 35.43	12.065	37873, Lalande, 19 47 40.91 −19 40 43.85
	Hygea - - - -	11.2	24.0	37.2	19 24.13	2	50.844			Hygea — 37873, Lalande, Δα Δδ
	37873, Lalande - -	46 2	59.1	11.9	20 59.07	2	38.750	0 35.13	12,022	M. T. h. m. s. m. s. ' "
	Hygea - - - -	21.7	34.2	48.2	21 34.20	2	50.772			6 24 42.26 + 0 35.77 − 3 2.71
	37873, Lalande - -	30.0	43.2	56.0	23 43.07	2	38.679	0 36.19	11.723	Δt + .10; Δρ − .01 − .24
	Hygea - - - -	6.2	19.6	32.0	24 19.26	2	50.402			p + .07 + 2.05
	37873, Lalande - -	35.7	49.0	2.2	25 48.97	2	38.626	0 35.86	11.776	
	Hygea - - - -	11.9	25.1	37.5	26 24.83	2	50.402			
	37873, Lalande - -	10.2	23.2	36.0	30 23.13	2	38.560	0 36.05	11.679	
	Hygea - - - -		59.3	12.0	30 59.18	2	50.239			
	37873, Lalande - -	35.2	48.0	1.0	6 35 48.07	2	38.322	+ 0 36.10	− 11.818	
	Hygea - - - -	11.0	24.3	37.2	36 24.17	2	50.140			(Continued.)

HYGEA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.	RESULTS.
1850.		s	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Nov. 13	37873, Lalande - -	59.2		25.1	6 40 12.15	2 38.269	+ 0 36.68	− 11.751	
	Hygea - - - -	35.5	49.0	2.0	40 48.83	1 50.020			
Nov. 14	37873, Lalande - -	25.2	38.0	51.2	6 3 38.13	2 46.587	+ 1 49.27	+ 1.585	Corr. Chron. + 12.36 s.
	Hygea - - - -	14.0	27.2	41.0	5 27.40	2 45.002			α (h. m. s.) δ (° ′ ″)
	37873, Lalande - -	53.3	6.5	19.1	9 6.30	2 46.481	1 49.80	1.471	37873, Lalande, 19 47 40.89 —19 40 43.87
	Hygea - - - -	43.0	56.1	9.2	10 56.10	2 45.010			Hygea — 37873, Lalande, Δα Δδ
	37873, Lalande - -	52.1	5.2	18.6	15 5.30	2 46.421	1 49.87	1.651	M. T. (h. m. s.) Δα (m. s.) Δδ (′ ″)
	Hygea - - - -	42.0	55.2	8.3	16 55.17	2 44.770			6 17 38.37 + 1 49.71 + 0 25.88
	37873, Lalande - -	48.7	1.9	15.3	22 1.97	2 46.303	1 49.20	1.780	Δt .30
	Hygea - - - -	38.5	51.0	4.0	23 51.17	2 44.523			Δρ .00 .03
	37873, Lalande - -	54.9	8.1	21.0	27 8.00	2 46.242	+ 1 50.40	+ 1.932	p + .07 + 2.06
	Hygea - - - -	45.2	58.7	11.3	28 58.40	2 44.340			
Nov. 21	38290, Lalande - -	45.2	58.0	11.2	6 46 58.13	2 26.978	+ 1 2.00	− 11.163	Corr. Chron. − 9.24 s.
	Hygea - - - -	47.0	0.4	13.0	48 0.13	2 38.141			α (h. m. s.) δ (° ′ ″)
	38290, Lalande - -	0.0	13.1	26.9	49 13.33	2 26.990	1 2.67	11.052	38290, Lalande, 19 56 22.45 —19 11 18.80
	Hygea - - - -	3.0	16.0	29.0	50 16.00	2 38.042			Hygea — 38290, Lalande, Δα Δδ
	38290, Lalande - -	25.7	38.6	51.7	51 38.67	2 26.948	1 2.33	10.927	M. T. (h. m. s.) Δα (m. s.) Δδ (′ ″)
	Hygea - - - -	28.0	41.0	54.0	52 41.00	2 37.875			7 1 22.79 + 1 2.78 — 2 46.51
	38290, Lalande - -	38.2	51.0	4.3	53 51.17	2 26.773	1 2.66	10.900	Δt + .17
	Hygea - - - -	41.0	54.0	6.5	54 53.83	2 37.673			Δρ — .02 — .33
	38290, Lalande - -	14.9	27.9	41.0	56 27.93	2 26.658	1 2.07	10.900	p + .10 + 1.88
	Hygea - - - -	17.0	30.0	43.0	57 30.00	2 37.558			
	38290, Lalande - -	33.3	46.5	59.7	7 6 46.50	2 25.390	1 3.50	10.829	
	Hygea - - - -	37.0	50.0	3.0	7 50.00	2 36.219			
	38290, Lalande - -	55.2		21.7	9 8.45	2 25.369	1 3.52	10.350	
	Hygea - - - -	59.0	11.9	25.0	10 11.97	2 35.719			
	38290, Lalande - -	33.0	45.9	59.1	11 46.00	2 24.983	1 3.07	10.687	
	Hygea - - - -	36.2	49.0	2.0	12 49.07	2 35.670			
	38290, Lalande - -	34.1	46.5	59.7	15 46.77	2 24.650	+ 1 3.23	− 10.700	
	Hygea - - - -	37.5	50.3	3.7	16 50.00	2 35.350			
									Corr. Chron. + 8.25 s.
Nov. 24	6903, B. A. C. - -	31.0	43.5	57.1	6 7 43.87	3 37.882	+ 1 43.13	+ 45.054	α (h. m. s.) δ (° ′ ″)
	Hygea - - - -		27.0		9 27.00	2 22.740			
	6903, B. A. C. - -	39.7	52.6	5.7	13 52.67	3 37.760	1 43.00	45.277	6903, B. A. C. 19 59 33.89 —19 13 50.56
	Hygea - - - -	22.5	36.0	48.5	15 35.67	2 22.395			Hygea — 6903, B. A. C. Δα Δδ
	6903, B. A. C. - -	49.6	2.7	16.1	19 2.80	3 37.592	1 43.20	45.289	M. T. (h. m. s.) Δα (m. s.) Δδ (′ ″)
	Hygea - - - -	33.0	46.0	59.0	20 46.00	2 22.215			6 18 13.67 + 1 43.25 +11 34.95
	6903, B. A. C. - -	36.2	49.0	2.8	6 24 49.33	3 37.400	+ 1 43.67	+ 45.252	Δt .28; Δρ .04 1.04
	Hygea - - - -	20.0	33.0	46.0	26 33.00	2 22.060			p + .08 + 1.92

COMET 1850, I.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic. w.	Mic.	Comet—Star. Δα	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
June 2	(☉ 9)	22.0	5.1	48.1	14 28 5.07	1	51.298	+ 0 30.63	+ 42.732	m. s.
	Comet 1850, I. . .	52.5	32.5	19.1	28 35.70	3	34.950			Corr. Chron. — 0 58.70
	(☉ 9)	32.1	15.4	57.9	32 15.13	1	51.342	0 29.97	43.329	α δ
	Comet 1850, I. . .	2.0	45.0	28.3	32 45.10	3	34.591			h. m. s. ° ′ ″
	(☉ 9)	18.5	1.3	44.2	36 1.33	1	51.295	0 28.87	43.495	(☉ 9) 17 17 47.11 +73 35 56.50
	Comet 1850, I. . .	46.6	29.7	14.3	36 30.20	3	34.710			Comet—(☉ 9) Δα Δδ
	(☉ 9)	53.2	37.0	19.7	40 36.63	1	51.449	0 27.57	43.263	h. m. s. m. s. ′ ″
	Comet 1850, I. . .	21.5	4.1	47.0	41 4.20	3	34.632			Sid. T. 15 8 9.68 + 0 18.82 +10 51.11
	(☉ 9)	50.0	34.1	17.9	45 34.00	1	51.319	0 26.70	43.146	Δρ — .08 — .23
	Comet 1850, I. . .	17.1	1.0	44.0	46 0.70	3	34.385			p — .82 — 3.79
	(☉ 9)	7.8	52.0	34.2	53 51.33	1	51.192	0 22.74	43.647	
	Comet 1850, I. . .	31.5	14.0	56.7	54 14.07	3	34.759			
	(☉ 9)	13.5	57.2	40.0	58 56.90	1	51.066	0 21.90	43.044	
	Comet 1850, I. . .	34.6	19.1	2.7	59 18.50	3	34.030			
	(☉ 9)	19.5	2.0	47.0	15 8 2.83	1	50.880	0 19.47	42.588	
	Comet 1850, I. . .	39.2	22.0	5.7	8 22.30	3	33.388			
	(☉ 9)	54.1	37.5	22.0	16 37.87	1	51.037	0 16.56	41.967	
	Comet 1850, I. . .	12.3	54.1	36.9	16 54.43	3	32.924			
	(☉ 9)	55.1	38.4		20 37.75	1	51.872	+ 0 16.95	41.068	
	Comet 1850, I . .	12.9	54.5	36.7	20 54.70	3	32.860			
	Comet 1850, I. . .	34.0	17.0	58.0	16 21 16.33	3	32.389			
	(☉ 9)	39.0	22.0		21 21.33	2	22.352	— 0 5.00	39.939	
	Comet 1850, I. . .	0.0	44.2	28.0	43 44.07	3	32.326			
	(☉ 9)	11.2	54.2	38.1	43 54.50	2	22.086	— 0 10.43	+ 40.152	s.
										Corr. Chron. — 58.03
June 3	2418, Groomb. . .	43.7	26.2	9.2	14 33 26.37	1	47.410	+ 7 8.78	+ 47.927	
	2420, Groomb. . .		21.7	4.2	33 21.92	2	44.153	6 13.23	21.016	α δ
	Comet 1850, I. . .		35.0	18.0	39 35.15	3	35.257			h. m. s. ° ′ ″
	2418, Groomb. . .	43.5	26.2	9.2	49 26.30	1	47.560	7 4.56	46.250	2418, Groomb., 17 3 38.10 +73 24 16.71
	2420, Groomb. . .	39.1	21.8	4.0	50 21.63	2	44.243	6 9.23	19.399	2420, Groomb., 17 4 33.81 73 31 15.40
	Comet 1850, I. . .	48.0	30.5	14.1	56 30.86	3	33.730			Comet — 2418, Groomb., Δα Δδ
	2418, Groomb. . .	55.1	39.1	21.7	15 1 38.63	1	47.857	7 1.04	45.671	h. m. s. m. s. ′ ″
	2420, Groomb. . .	49.8	34.1	16.2	2 33.37	2	44.532	6 6.30	18.828	Sid. T. 15 7 2.75 + 7 1.04 +11 46.15
	Comet 1850, I. . .	56.0	40.0	23.0	8 39.67	3	33.448			Δρ — .09 — .26
										p — .79 — 3.92
	2418, Groomb. . .	30.1	13.3	55.5	14 12.96	1	47.592	6 57.85	45.121	Comet — 2420, Groomb.
	2420, Groomb. . .	24.5	8.7	54.3	15 9.16	2	44.125	6 1.65	18.420	
	Comet 1850, I. . .		10.5	54.0	21 10.81	3	32.633			h. m. s. m. s. ′ ″
										Sid. T. 15 7 2.75 + 6 5.69 + 4 54.01
	2418, Groomb. . .	31.7	14.2	57.5	27 14.47	1	47.621	+ 6 52.95	+ 44.819	Δρ — .04 — .11
	2420, Groomb. . .	26.8	9.3	52.0	28 9.37	2	44.283	5 58.05	17.989	p — .80 — 3.94
	Comet 1850, I. . .		7.0	50.5	34 7.42	3	32.360			
June 4	5769, B. A. C. . .	57.1	39.7	22.0	14 15 39.60	2	44.632	+ 4 3.57	+ 9.913	
	Comet 1850, I. . .	59.5	43.0	27.0	19 43.17	2	54.545			
	2418, Groom. . .	13.2	56.0	39.0	19 56.07	2	56.168	— 0 12.90	— 1.623	
	5769, B. A. C. . .	22.0	5.1	48.1	24 5.07	2	44.511	+ 4 1.00	+ 8.949	
	Comet 1850, I. . .	23.0	6.2	49.0	28 6.07	2	53.460			
	2418, Groom. . .	39.0	22.0	4.0	28 21.67	2	56.091	— 0 15.60	— 2.631	
	5769, B. A. C. . .	21.5	5.1	48.1	32 4.90	2	44.510	+ 3 58.10	+ 9.259	
	Comet 1850, I. . .	19.5	3.0	46.5	36 3.00	2	53.769			
	2418, Groom. . .	38.4	21.5	4.0	14 36 21.30	2	56.111	— 0 18.30	— 2.342	(Continued.)

COMET 1850, I.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Comet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	m. s.
June 4	5769, B. A. C.	17.2	59.4	42.1	14 38 59.57	2	44.402	+ 3 55.63	+ 8.851
	Comet 1850, I.	11.5	56.0		42 55.20	2	53.253		
	2418, Groomb.	32.5	15.5	59.1	43 15.70	2	56.129	— 0 20.50	— 2.876
	5769, B. A. C.	19.7	3.5	45.2	46 2.80	2	44.301	+ 3 53.93	+ 8.744
	Comet 1850, I.	13.0	56.7	40.5	49 56.73	2	53.045		
	2418, Groomb.	36.0	19.0	2.0	50 19.00	2	55.891	— 0 22.27	— 2.846
	5769, B. A. C.	19.5	3.7	47.1	53 3.43	2	44.220	+ 3 51.57	+ 7.691
	Comet 1850, I.	13.0	55.0	37.0	56 55.00	2	51.911		
	2418, Groomb.	36.2	20.0	3.0	57 19.73	2	55.968	— 0 24.73	— 4.057
	5769, B. A. C.	36.1	19.2	1.7	15 0 19.00	2	44.205	+ 3 48.17	+ 7.097
	Comet 1850, I.	24.0	6.0	51.5	4 7.17	2	51.302		
	2418, Groomb.		33.7	18.0	4 34.67	2	55.890	— 0 27.50	— 4.588
	5769, B. A. C.	57.3	39.7	23.0	7.40.00	2	44.159	+ 3 47.73	+ 7.621
	Comet 1850, I.	44.0	28.2	11.0	11 27.73	2	51.780		
	2418, Groomb.	13.2	57.0	39.2	11 56.47	2	55.790	— 0 28.74	— 4.010
	5769, B. A. C.	35.8	18.9	1.8	15 18.83	2	43.983	+ 3 45.85	+ 7.570
	Comet 1850, I		4.3	48.1	19 4.68	2	51.553		
	2418, Groomb.	53.0	35.0	18.0	19 35.33	2	55.618	— 0 30.65	— 4.065
	5769, B. A. C.	54.1	37.2	19.2	22 36.83	2	44.083	+ 3 42.30	+ 7.167
	Comet 1850, I.		19.0	2.0	26 19.13	2	51.250		
	2418, Groomb.		53.0	36.0	26 53.13	2	55.445	— 0 34.00	— 4.195
June 5	Comet 1850, I.	4.8	47.0	28.1	14 40 46.63	1	45.843		
	(° 10)	3.0	46.1	28.1	41 45.73	1	47.215	— 0 59.10	— 1.372
	5769, B. A. C.	43.2	25.7	8.2	44 25.70	3	34.157	3 39.07	48.394
	Comet 1850, I.	6.5	48.0	30.2	48 48.23	1	47.316		
	(° 10)		50.3	32.0	49.50.28	1	49.017	1 2.05	1.701
	5769, B. A. C.	47.2	30.1	11.0	51 29.43	3	36.130	3 41.20	48.894
	Comet 1850, I.	28.0		52.0	55 10.00	1	47.124		
	(° 10)		13.5	55.6	56 13.05	1	48.940	1 3.05	1.816
	5769, B. A. C.	9.7	52.0		58 51.85	3	35.750	3 41.85	48.706
	Comet 1850, I.	46.0	28.4	11.0	15 3 28.47	1	47.206		
	(° 10)	51.7	34.0	17.2	4 34.30	1	49.526	1 5.83	2.320
	5769, B. A. C.	32.1	14.5	57.0	7 14.53	3	36.527	3 46.06	49.401
	Comet 1850, I.	22.7	3.5		13 4.27	1	46.627		
	(° 10)	31.3	14.1	56.2	14 13.87	1	49.218	1 9.60	2.591
	5769, B. A. C.	10.0	53.2	36.0	16 53.07	3	36.960	3 48.80	49.713
	Comet 1850, I.	17.3	59.2	42.0	18 59.50	1	46.023		
	(° 10)	29.1	11.2	53.1	20 11.13	1	49.162	1 11.63	3.139
	5769, B A. C.	7.7	50.1	33.0	22 50.27	3	36.221	3 50.77	50.278
	Comet 1850, I.	32.0	13.2	56.0	26 13.73	1	45.521		
	(° 10)	45.7		9.0	27 27.35	1	49.066	1 13.62	3.545
	5769, B. A. C.	24.0	7.0	49.2	30 6.73	3	36.182	3 53.00	50.741
	Comet 1850, I.	23.0	5.2	47.3	33 5.17	1	44.851		
	(° 10)	39.5		4.0	34 21.75	1	49.087	1 16.58	4.236
	5769, B. A. C.	18.5	1.2	43.8	37 1.17	3	35.940	3 56.00	51.169
	Comet 1850, I.	46.0	28.5	11.0	46 28.50	1	46.221		
	(° 10)	7.0	49.4	31.0	47 49.13	1	50.459	1 20.63	4.238
	5769, B. A. C.	45.7	28.0	11.0	50 28.23	3	37.510	— 3 59.73	— 51.369
June 9	Comet 1850, I.	48.1		6.5	14 19 28.30	2	49.637		
	2356, Groomb.	33.1	11.0	49.0	21 11.03	2	34.316	— 1 42.73	+ 15.321
	Comet 1850, I.	4.2	42.0	23.0	14 24 43.07	2	48.934		
	2356, Groomb.		29.2	8.0	26 29.17	2	34.352	— 1 46.10	+ 14.582

RESULTS.

June 4.

Corr. Chron. — 56.50 s.

	α h. m. s.	δ ° ′ ″
5769, B. A. C.,	16 59 20.91	+73 21 16.44
2418, Groomb.,	17 3 38.10	73 24 17.03

Comet — 5769, B. A. C,

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	14 52 31.29	+ 3 52.78	+ 2 7.34
Δρ		— .02	— .05
p		— .84	— 3.91

Comet — 2418, Groomb.

	h. m. s.		
Sid. T.	14 52 31.29	— 0 23.52	— 0 51.07
Δρ		.00	+ .02
p		— 85	— 3.93

June 5.

Corr. Chron. — 55.27 s.

	α h. m. s.	δ ° ′ ″
(° 10)	16 56 41.02	+73 9 11.94
5769, B. A. C.,	16 59 21.14	73 21 16.82

Comet — (° 10)

	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	15 10 51.90	— 1 9.21	— 0 42.62
Δρ		.00	+ .92
p		— .71	— 5.18

Comet — 5769, B. A. C.

	h. m. s.	m. s.	′ ″
Sid. T.	15 10 51.90	— 3 48.50	—12 46.21
Δρ		+ .08	+ .30
p		— .63	— 5.24

(Continued.)

COMET 1850, I.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Comet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w.	revs	m. s.	revs.
e 9	Comet 1850, I. - -	38. 1	16. 0	54. 3	14 31 16. 13	2	48. 127		
	2356, Groomb. - -	27. 1	6. 0	45. 0	33 6. 03	2	34. 147	— 1 49. 90	+ 13. 980
	Comet 1850, I. - -	9. 7	49. 0	28. 0	40 48. 90	2	47. 604		
	2356, Groomb. - -	2. 0	41. 0	20. 0	42 41. 00	2	34. 147	— 1 52. 10	+ 13. 457
e 10	A. Z., 115, 164 - -	8. 5	46. 1	23. 0	15 22 45. 87	1	39. 412	+ 1 36. 03	+ 25. 634
	A. Z., 115, 165 - -		55. 1	33. 2	22 55. 47	2	34. 022	1 26. 43	0. 857
	Comet 1850, I. - -	44. 0	22. 1	59. 6	24 21. 90	2	34. 879		
	A. Z., 115, 164 - -	43. 1	21. 4	59. 2	28 21. 23	1	39. 510	1 34. 67	25. 577
	A. Z., 115, 165 - -	53. 2	31. 2	9. 7	28 31. 37	2	34. 180	1 24. 53	0. 740
	Comet 1850, I. - -	18. 2	56. 3	33. 2	29 55. 90	2	34. 920		
	A. Z., 115, 164 - -	20. 2	58. 0	36. 1	32 58. 10	1	40. 612	1 32. 97	25. 355
	A. Z., 115, 165 - -	29. 7	7. 8	46. 2	33 7. 90	2	35. 043	1 23. 17	0. 757
	Comet 1850, I. - -	53. 2	31. 0	9. 0	34 31. 07	2	35. 800		
	A. Z., 115, 164 - -	6. 2	44. 2		36 44. 25	1	40. 621	1 31. 58	25. 004
	A. Z., 115, 165 - -	15. 7	54. 0	32. 0	36 53. 90	2	35. 132	1 21. 93	0. 326
	Comet 1850, I. - -	38. 0	16. 5	53. 0	38 15. 83	2	35. 458		
	A. Z., 115, 164 - -	29. 2	8. 2	46. 0	41 7. 80	1	40. 620	1 31. 50	24. 877
	A. Z., 115, 165 - -	39. 1	18. 1	56. 0	41 17. 73	2	35. 220	1 21. 57	0. 110
	Comet 1850, I. - -	0. 0	41. 7	16. 2	42 39. 30	2	35. 330		
	A. Z., 115, 164 - -	41. 8	20. 0	58. 0	48 19. 93	1	40. 720	1 28. 20	+ 24. 299
	A. Z., 115, 165 - -	51. 3	30. 2	8. 0	48 29. 83	2	35. 337	1 18. 30	— 0. 485
	Comet 1850, I. - -	10. 0	48. 2	26. 2	49 48. 13	2	34. 852		
	A. Z., 115, 164 - -	54. 7	33. 1		52 33. 20	1	40. 695	1 26. 70	+ 23. 583
	A. Z., 115, 165 - -	4. 2	42. 0	21. 0	52 42. 40	2	35. 160	1 17. 50	— 1. 049
	Comet 1850, I. - -	22. 2	59. 0		53 59. 90	2	34. 111		
	A. Z., 115, 164 - -	84. 1	12. 0		16 15 12. 00	1	41. 816	1 17. 75	+ 21. 080
	A. Z., 115, 165 - -	43. 2	21. 0	59. 0	15 21. 07	2	36. 650	1 8. 68	— 3. 921
	Comet 1850, I. - -	51. 0		8. 5	16 29. 75	2	32. 729		
	A. Z , 115, 164 - -	41. 3			18 19. 60	1	41. 289	1 17. 43	+ 21. 447
	A. Z., 115, 165 - -	50. 7	29. 1	7. 2	18 29. 00	2	36. 792	1 8. 03	— 4. 221
	Comet 1850, I. - -	59. 0	37. 0	15. 1	19 37. 03	2	32. 571		
	A. Z., 115, 164 - -	37. 1	15. 7	52. 0	22 14. 93	1	40. 512	1 16. 87	+ 21. 203
	A. Z., 115, 165 - -	46. 7	25. 1	2. 1	22 24. 63	2	35. 061	1 7. 17	— 3. 513
	Comet 1850, I. - -	54. 1		9. 5	23 31. 80	2	31. 548		
	A. Z., 115, 164 - -	5. 7	43. 7	22. 0	26 43. 80	1	41. 108	1 15. 60	+ 20. 579
	A. Z., 115, 165 - -	15. 0	54. 0	32. 3	26 53. 77	2	35. 534	+ 1 5. 63	— 4. 014
	Comet 1850, I. - -	21. 0	0. 2	37. 0	27 59. 40	2	31. 520		
e 11	2319, Groomb. - -	14. 0	50. 9	27. 1	14 35 50. 67	1	42. 472	+ 4 48. 65	+ 40. 233
	A. Z., 115, 56 - -	12. 5	48. 7	26. 1	38 49. 10	1	56. 629	1 50. 22	26. 076
	Comet 1850, I. - -	2. 5		15. 9	40 39. 32	2·	52. 538		
	2319, Groomb. - -	17. 1	53. 9	31. 2	42 54. 07	1	42. 430	4 44. 66	39. 630
	A. Z., 115, 56 - -	15. 1	51. 0	28. 7	45 51. 60	1	56. 538	1 47. 13	25. 522
	Comet 1850, I. - -	1. 0	39. 2	16. 0	47 38. 73	2	51. 893		
	2319, Groomb. - -	13. 1	49. 2	26. 3	49 49. 53	1	42. 322	4 42. 94	39. 118
	A. Z., 115, 56 - -	9. 5	47. 0	23. 8	52 46. 77	1	56. 642	1 45. 70	24. 798
	Comet 1850, I. - -	56. 2	32. 0	9. 2	54 32. 47	3	51. 273		
	2319, Groomb. - -	20. 8	58. 0	35. 0	56 57. 93	1	46. 289	4 40. 27	38. 309
	A. Z., 115, 56 - -	18. 0	55. 1	32. 0	59 55. 03	1	60. 630	1 43. 17	23. 968
	Comet 1850, I. - -	1. 0	38. 4	15. 2	15 1 38. 20	2	54. 431		
	2319, Groomb. - -	23. 2	0. 8	37. 2	5 0. 40	1	46. 387	4 38. 55	37. 717
	A. Z., 115, 56 - -	20. 7	58. 0	35. 0	7 57. 90	1	60. 477	+ 1 41. 05	+ 23. 627
	Comet 1850, I. - -	2. 0		15. 5	9 38. 95	2	53. 937		

RESULTS.

			m. s.
Corr. Chron.			— 0 48. 82
		α	δ
		h. m. s.	° ′ ″
2356, Groomb.,		16 27 2. 60	+71 43 14. 49
Comet—2356, Groomb.,		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	14 28 15. 28	— 1 47. 71	+ 3 40. 32
	Δ ρ	+ .02	— .08
	p	— .76	— 4. 66
			m. s.
Corr. Chron.			— 0 48. 31
		α	δ
		h. m. s.	° ′ ″
A. Z., 115, 164,		16 15 49. 74	+71 12 27. 22
165,		16 15 59. 07	71 18 28. 85
Comet—A. Z., 115, 164,		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	15 53 50. 78	+ 1 26. 30	+ 6 1. 11
	Δ ρ	.00	— .14
	p	— .16	— 5. 17
Comet—A. Z., 115, 165.			
	h. m. s.	m. s.	′ ″
Sid. T.	15 53 50. 78	+ 1 16. 63	— 0 20. 13
	Δ ρ	.00	+ .01
	p	— .16	— 5. 21
			m. s.
Corr. Chron.			— 0 47. 50
		α	δ
		h. m. s.	° ′ ″
2319, Groomb.		16 5 26. 12	+70 39 55. 36
A. Z., 115, 156,		16 8 23. 76	70 43 35. 37
Comet—2319, Groomb.,		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	14 57 37. 36	+ 4 41. 82	+ 9 54. 50
	Δ ρ	— .01	— .22
	p	— .21	— 5. 12
Comet—A. Z., 115, 156.			
	h. m. s.	m. s.	′ ″
Sid. T.	14 57 37. 36	+ 1 44. 21	+ 6 15. 98
	Δ ρ	— .01	— .14
	p	— .22	— 5. 15

(Continued.)

COMET 1850, I.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Comet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
1850. June 11	2319, Groomb. - -	8.2	45.8	23.0	15 11 45.67	1	46.577	+ 4 35.85	+ 37.075
	A. Z., 115, 156 - -	5.8	43.5	20.7	14 43.33	1	60.869	+ 1 38.19	+ 22.783
	Comet 1850, I. - -	44.4		58.5	16 21.52	2	53.485		
June 12	(° 21) - - - -	38.1	13.7		9 13.79	1	51.631	+ 3 59.76	+ 32.126
	(° 22) - - - -	40.2		52.0	10 16.10	1	56.425	2 57.45	27.332
	Comet 1850, I. - -	37.1		50.0	13 13.55	2	53.590		
	(° 21) - - - -	58.1	34.0	10.1	19 34.07	1	51.750	3 57.69	31.542
	(° 22) - - - -	0.0	36.2	13.1	20 36.43	1	56.519	2 55.33	26.773
	Comet 1850, I. - -	55.7			23 31.76	2	53.125		
	(° 21) - - - -	41.0	17.0	53.0	27 17.00	1	51.970	3 56.23	31.045
	(° 22) - - - -	43.1	19.3	55.2	28 19.20	1	56.589	2 54.03	26.426
	Comet 1850, I. - -	37.7	13.0	49.0	31 13.23	2	52.848		
	(° 21) - - - -	27.0	3.5		37 3.42	1	52.195	3 52.88	31.045
	(° 22) - - - -	29.5	5.0	41.0	38 5.17	1	56.919	+ 2 51.13	+ 26.321
	Comet 1850, I. - -	19.5	56.5	33.1	40 56.30	2	53.073		
June 13	Comet 1850, I. - -	36.0		46.2	14 50 11.20	2	43.605		
	A. Z., 114, 4 - -	28.0	3.2	38.1	54 3.10	2	28.127	− 3 52.00	+ 14.478
	A. Z., 114, 5 - -	49.2	24.1	0.5	54 24.60	2	31.921	4 13.50	11.684
	Comet 1850, I. - -	9.2	44.3	19.2	57 44.23	2	44.232		
	A. Z, 114, 4 - -	4.0	39.7	14.4	15 1 39.37	2	29.612	3 55.14	14.620
	A. Z., 114, 5 - -	25.3	1.0	36.1	2 0.80	2	32.330	4 16.57	11.902
	Comet 1850, I. - -	39.7	14.3	49.5	6 14.50	2	43.352		
	A. Z., 114, 4 - -	36.0	11.2	47.1	10 11.43	2	29.669	3 56.93	13.683
	A. Z., 114, 5 - -	58.1	33.6	8.0	10 32.23	2	32.489	4 18.73	10.863
	Comet 1850, I. - -	21.7	57.1	32.0	42 56.93	2	41.171		
	A. Z., 114, 4 - -	31.4	5.1	40.3	47 5.60	2	31.411	4 8.67	9.760
	A Z, 114, 5 - -	51.2		2.0	47 26.60	2	34.179	4 29.67	6.992
	Comet 1850, I. - -	6.5	41.2	16.0	52 41.23	2	40.110		
	A. Z., 114, 4 - -	16.4	51.7	27.3	56 51.80	2	31.482	4 10.57	8.628
	A. Z., 114, 5 - -	38.5	14.2	49.0	57 13.90	2	34.141	4 32.67	5.969
	Comet 1850, I. - -		7.5	43.0	16 0 7.60	2	39.759		
	A. Z, 114, 4 - -	44.5	19.7	55.2	4 19.80	2	31.367	4 12.20	8.392
	A. Z., 114, 5 - -	6.2	41.7	17.2	4 41.70	2	34.207	4 34.10	5.552
	Comet 1850, I. - -	45.0	21.2	55.9	7 20.70	2	39.676		
	A. Z., 114, 4 - -	0.0	35.1		11 35.10	2	31.789	4 14.40	7.887
	A. Z., 114, 5 - -	21.5	57.2	32.0	11 56.90	2	34.551	4 36.20	5.125
	Comet 1850, I. - -	8.0	42.3	18.0	15 42.77	2	41.932		
	A. Z, 114, 4 - -	27.1	2.1	37.2	20 2.13	2	34.658	4 19.36	7.274
	A. Z., 114, 5 - -	49.0	24.1	59.3	20 24.13	2	37.535	− 4 41.36	+ 4.397
June 19	Comet 1850, I. - -	23.7	52.3	21.0	14 44 52.30	2	31.725		
	(° 12) - - - -	3.0	31.7		46 31.65	1	45.521	− 1 39.35	+ 16.371
	Comet 1850, I. - -	19.5	47.9	16.0	48 47.80	2	31.607		
	(° 12) - - - -	0.2	29.5	58.1	50 29.27	1	45.900	1 41.47	15.874
	Comet 1850, I. - -	43.8	11.9	41.5	52 12.40	2	30.853		
	(° 12) - - - -	25.1	54.2		53 54.20	1	45.624	1 41.80	15.396
	Comet 1850, I. - -	45.7		43.0	56 14.35	2	30.416		
	(° 12) - - - -	29.4		26.1	57 57.75	1	45.508	1 43.40	15.075
	Comet 1850, I. - -	31.5	0.3	28.5	15 0 0.10	2	30.271		
	(° 12) - - - -	14.7	42.7	11.9	1 43.10	1	45.646	− 1 43.00	+ 14.792

RESULTS.

June 11:

Corr. Chron. — 0 46.34 (m. s.)

June 12:

	α (h. m. s.)	δ (° ′ ″)
(° 21)	15 58 43.68	+70 7 31.8
(° 22)	15 59 45.77	70 8 38.1

Comet—(° 21)

	h. m. s.	Δ α (m. s.)	Δ δ (′ ″)
Sid. T.	15 26 27.37	+ 3 56.64	+ 8 3.3
Δ ρ		— .01	— .1
p		— .24	— 5.05

Comet—(° 22)

	h. m. s.	m. s.	′ ″
Sid. T.	15 26 27.37	+ 2 54.48	+ 6 50.5
Δ ρ		— .01	— .15
p		— .24	— 5.05

June 13:

Corr. Chron. — 0 43.33 (m. s.)

	α (h. m. s.)	δ (° ′ ″)
A. Z., 114, 4,	15 59 35.50	+69 38 1.08
A. Z., 114, 5,	15 59 56.86	69 38 46.69

Comet—A. Z., 114, 4,

	h. m. s.	Δ α (m. s.)	Δ δ (′ ″)
Sid. T.	15 35 54.05	— 4 6.16	+ 2 42.77
Δ ρ		.00	— .06
p		— .14	— 5.26

Comet—A. Z., 114, 5.

	h. m. s.	m. s.	′ ″
Sid. T.	15 35 54.05	— 4 27.75	+ 2 0.03
Δ ρ		.00	— .05
p		— .14	— 5.26

June 19:

Corr. Chron. — 0 34.52 (m. s.)

	α (h. m. s.)	δ (° ′ ″)
(° 12)	15 18 16.75	+64 58 14.2

Comet—(° 12)

	h. m. s.	Δ α (m. s.)	Δ δ (′ ″)
Sid. T.	14 56 54.37	— 1 43.35	+ 3 47.6
Δ ρ		.00	— .0
p		— .12	— 5.1

(Continued.)

COMET 1850, I.

DATE.	OBJECTS.	Observed times of transit.				Mic.		Comet.—Star.		RESULTS.
		A.	B.	C.	Mean.			Δ α	Δ mic.	
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
June 30	(° 15) - - - -	31.3	50.2	9.0	18 46 50.16	3	21.630	+ 0 58.50	+ 0.522	
	Comet 1850, I. - -		48.7	7.5	47 48.66	3	22.152			
	(* 16) - - - -	32.0	50.3	9.0	48 50.43	2	20.937	— 1 1.77	+ 31.127	
	(° 15) - - - -	10.0	29.2	48.2	51 29.13	3	21.518	+ 0 57.13	— 0.903	
	Comet 1850, I. - -	7.5	26.3	45.0	52 26.26	3	20.615			
	(° 16) - - - -		29.0	47.2	53 28.71	2	20.920	— 1 2.45	+ 29.607	
July 1	(° 17) - - - -	48.1	6.0	24.1	17 47 6.06	2	28.930	+ 1 11.04	+ 8.300	s.
	Comet 1850, I. - -	59.1	17.0	35.2	48 17.10	2	37.230			Corr. Chron. — 12.62
	(° 17) - - - -	43.7	2.0	19.7	50 1.80	2	28.073	1 10.43	7.806	α δ
	Comet 1850, I. - -	54.2	12.3	30.2	51 12.23	2	35.879			h. m. s. ° ′ ″
	(° 17) - - - -	36.1	54.3	13.0	52 54.47	2	27.932	1 10.56	6.954	(° 17) 14 18 34.77 +47 27 17.96
	Comet 1850, I. - -	47.1	5.0	23.0	54 5.03	2	34.886			Comet — (° 17) Δ α Δ δ
	(° 17) - - - -	8.1	26.0	44.1	55 26.07	2	27.917	1 10.13	6.266	h. m. s. m. s. ′ ″
	Comet 1850, I. - -	18.3	36.0	54.3	56 36.20	2	34.183			Sid. T. 18 0 36.40 + 1 9.14 + 1 13.30
	(° 17) - - - -	37.6	55.2	13.2	57 55.33	2	27.870	1 9.60	5.537	Δρ .00 — .02
	Comet 1850, I. - -	47.0	5.0		59 4.93	2	33.407			p + .78 — 0.86
	(° 17) - - - -	57.3	15.0	33.0	18 0 15.10	2	27.839	1 8.03	4.377	
	Comet 1850, I. - -	5.1	23.1	41.2	2 23.13	2	32.216			
	(* 17) - - - -	58.1	15.9	34.1	4 16.03	2	27.991	1 9.03	3.194	
	Comet 1850, I. - -	7.0	25.2	43.0	5 25.06	2	31.185			
	(° 17) - - - -	24.7	42.8	1.0	6 42.83	2	27.873	1 8.20	2.477	
	Comet 1850, I. - -	33.1	51.0	9.0	7 51.03	2	30.350			
	(° 17) - - - -	58.1	16.0		9 16.37	2	27.890	1 7.00	1.902	
	Comet 1850, I. - -	5.0	23.1	42.0	10 23.37	2	29.792			
	(° 17) - - - -	26.8	44.6	2.7	11 44.70	2	27.882	+ 1 7.40	+ 0.879	
	Comet 1850, I. - -	34.1	52.0	10.2	12 52.10	2	28.761			
July 4	Comet 1850, I. - -	49.2	5.0	22.0	17 4 5.40	2	33.825			s.
	(° 19) - - - -	25.1	41.0	57.0	4 41.03	2	46.960	— 0 35.63	+ 13.135	Corr. Chron. — 5.06
	Comet 1850, I. - -	42.0	58.5	15.0	7 58.50	2	34.878			α δ
	(° 19) - - - -	18.5	33.8	50.8	8 34.37	2	46.980	0 35.87	12.102	h. m. s. ° ′ ″
	Comet 1850, I. - -	50.2	6.0	23.5	10 6.56	2	36.047			(° 19) 14 10 22.30 +41 6 13.84
	(° 19) - - - -	27.0	43.1	59.0	10 43.03	2	47.130	0 36.47	11.083	Comet — (° 19) Δ α Δ δ
	Comet 1850, I. - -	58.5	15.1	31.2	12 14.83	2	36.880			h. m. s. m. s. ′ ″
	(° 19) - - - -	35.2	51.2	8.0	12 51.47	2	47.175	0 36.64	10.295	Sid. T. 17 12 21.70 — 0 36.51 + 2 39.51
	Comet 1850, I. - -		21.2	37.1	14 21.03	2	37.352			Δρ .00 + .04
	(° 19) - - - -	41.0	57.2	13.5	14 57.23	2	47.018	0 36.20	9.666	p + .81 — 1.83
	Comet 1850, I. - -	13.7	29.3	46.0	16 29.67	2	38.292			
	(° 19) - - - -	50.0	6.0	22.9	17 6.30	2	47.918	0 36.63	9.626	
	Comet 1850, I. - -	35.0	52.0	7.0	21 51.33	2	40.200			
	(° 19) - - - -	13.2	29.2	46.0	22 29.47	2	46.742	— 0 38.14	+ 6.742	
July 7	Comet 1850, I. - -	59.1	14.3	29.0	16 28 14.13	1	39.172			
	(° 20) - - - -	10.0	25.0	39.2	28 24.73	2	47.212	— 0 10.60	— 38.207	
	Comet 1850, I. - -	8.5	23.2		30 23.16	1	37.815			
	(° 20) - - - -	19.1	34.0	48.5	30 33.86	2	47.258	0 10.70	39.610	
	Comet 1850, I. - -	1.2	14.8	30.8	35 15.60	1	35.840			
	(° 20) - - - -	13.2		42.0	16 35 27.60	2	47.255	— 0 12.00	— 41.582	(Continued.)

(Continued.)

COMET 1850, I.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Comet—Star. Δα	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	m. s.
July 7	Comet 1850, I. - -	36.1	39.8	56.0	16 37 40.63	1	34.450			Corr. Chron. + 0 4.30
	(° 20) - - - -	39.0		8.5	37 53.75	2	47.230	− 0 13.12	− 42.947	
	Comet 1850, I. - -	41.1	54.3	8.7	40 54.70	1	33.510			α δ h. m. s. ° ' "
	(° 20) - - - -	54.0	8.0	23.0	41 8.33	2	47.305	0 13.63	43.962	(° 20) 14 1 9.13 +34 7 15.47
	Comet 1850, I. - -	39.0	52.7	7.2	43 52.96	1	32.200			Comet—(° 20) Δα Δδ
	(° 20) - - - -	51.0	6.0	21.1	44 6.37	2	47.380	0 13.41	45.347	h. m. s. m. s. ' "
	Comet 1850, I. - -	22.8	38.0	51.5	46 37.43	1	30.875			Sid. T. 16 39 7.14 − 0 12.60 −11 5.41
	(° 20) - - - -	36.5	51.0	5.9	46 51.13	2	47.440	0 13.70	46.732	Δρ .00 + .19
	Comet 1850, I. - -	9.7		38.5	49 24.10	1	29.547			p + .69 + 3.05
	(° 20) - - - -	23.0		52.5	49 37.75	2	47.343	− 0 13.65	− 47.963	
July 10	4529, Rumker - -	56.1	10.0	24.0	17 52 10.03	2	19.798	+ 2 24.27	+ 4.564	
	Comet 1850, I. - -	20.8	34.0	48.1	54 34.30	2	24.362			m. s.
	4529, Rumker - -	2.2	16.0	29.0	57 15.73	2	20.058	2 22.13	2.121	Corr. Chron. + 0 4.77
	Comet 1850, I. - -	24.6	38.0	51.0	59 37.86	2	22.179			
	4529, Rumker - -	47.9	2.0	16.0	18 1 1.97	2	20.268	2 22.46	+ 0.558	α δ h. m. s. ° ' "
	Comet 1850, I. - -	11.0	24.3	38.0	3 24.43	2	20.826			4529, Rumker, 13 50 34.76 +25 44 12.10
	4529, Rumker - -	19.5	33.0	47.1	4 33.20	2	20.042	2 21.77	− 0.648	Comet—4529, Rumker, Δα Δδ
	Comet 1850, I. - -	41.9	55.0	8.0	6 54.97	2	19.394			h. m. s. m. s. ' "
	4529, Rumker - -	41.5	55.0	9.0	9 55.17	2	20.000	2 21.56	3.490	Sid. T. 18 5 37.54 + 2 22.24 − 0 6.09
	Comet 1850, I. - -	3.1	16.3	30.8	12 16.73	2	16.510			Δρ .00 .00 p + .90 + 8.04
	4529, Rumker - -	53.2	7.0	21.0	14 7.07	2	20.290	+ 2 21.26	− 5.481	
	Comet 1850, I. - -	15.0	28.0	42.0	16 28.33	2	14.809			
July 11	Comet 1850, I. - -	55.1	8.0	21.0	18 14 8.03	3	24.869			
	4551, Rumker - -	26.1	39.2	52.9	17 39.40	1	38.920	− 3 31.37	+ 46.029	m. s.
	Comet 1850, I. - -	58.2	11.9	25.0	19 11.70	3	22.750			Corr. Chron. + 0 7.00
	4551, Rumker - -	30.2	43.7	56.7	22 43.53	1	38.870	3 31.83	43.960	α δ
	Comet 1850, I. - -	16.8	29.7	43.5	25 30.00	3	19.760			h. m. s. ° ' "
	4551, Rumker - -	48.5	2.0	15.1	29 1.87	1	38.701	3 31.87	41.139	4551, Rumker, 13 54 3.56 +22 42 29.22
	Comet 1850, I. - -	42.5	56.1	9.1	30 55.90	2	47.673			Comet—4551, Rumker, Δα Δδ h. m. s. m. s. ' "
	4551, Rumker - -	16.0	29.1	42.5	34 29.20	1	39.130	3 33.30	38.710	Sid. T. 18 28 46.60 − 3 32.77 +10 8.22
	Comet 1850, I. - -	54.1	7.0	21.5	39 7.53	2	44.146			Δρ + .01 − .22
	4551, Rumker - -	28.1	41.8	54.1	42 41.33	1	39.549	3 33.80	34.764	p + .95 + 8.60
	Comet 1850, I. - -	51.1	4.3	17.9	43 4.43	2	42.275			
	4551, Rumker - -	25.6	39.1	52.0	46 38.90	1	39.612	− 3 34.47	+ 32.830	
July 14	Weisse XIII, 737 -	33.8		59.5	17 13 46.65	2	55.222	+ 1 9.55	+ 29.519	m. s.
	Comet 1850, I. - -	43.7	56.2	8.7	14 56.20	1	55.870			Corr. Chron. + 0 12.16
	Weisse XIII, 737 -	36.8	49.3	1.9	16 49.33	2	55.240	1 9.50	27.662	
	Comet 1850, I. - -	46.3	58.7	11.5	17 58.83	1	57.745			α δ h. m. s. ° ' "
	Weisse XIII, 737 -		45.8	58.7	20 45.82	2	55.177	1 9.25	25.419	Weisse XIII, 737, 13 42 47.76 +14 14 6.90
	Comet 1850, I. - -	42.2	55.0	8.0	21 55.07	1	59.925			
	Weisse XIII, 737 -	54.0	7.0	19.0	37 6.67	2	54.857	1 7.83	18.191	Comet—Weisse XIII, 737, Δα Δδ
	Comet 1850, I. - -	2.0	14.7	26.8	38 14.50	2	36.666			h. m. s. m. s. ' " Sid. T. 17 33 18.60 + 1 7.81 + 4 40.15
	Weisse XIII, 737 -	0.3	13.1		40 13.35	3	25.402	+ 1 7.55	+ 16.680	Δρ .00 .14 p + .84 + 9.35
	Comet 1850, I. - -	8.1	20.4	34.2	41 20.90	2	38.634			

(Continued.)

COMET 1850, I.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Comet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
July 14	Weisse XIII, 737 .	30. 5	43. 5	56. 0	17 42 43. 33	3 25. 051	+ 1 7. 04	+ 15. 501
	Comet 1850, I. . .	38. 1	50. 0	3. 0	43 50. 37	2 39. 462		
	Weisse XIII, 737 .	4. 2	17. 1	29. 4	45 16. 90	3 24. 955	1 7. 20	14. 338
	Comet 1850, I. . .	11. 7	24. 1	36. 5	46 24. 10	2 40. 529		
	Weisse XIII, 737 .	39. 1	51. 5	4. 2	47 51. 60	3 25. 043	1 6. 53	12. 980
	Comet 1850, I. . .	45. 2	58. 0	11. 2	48 58. 13	2 41. 975		
	Weisse XIII, 737 .	58. 1	10. 9	23. 1	51 10. 70	3 25. 210	1 6. 33	11. 821
	Comet 1850, I. . .	4. 5	17. 1	29. 5	52 17. 03	2 43. 301		
	Weisse XIII, 737 .	49. 1	2. 0	14. 7	54 1. 93	2 55. 052	+ 1 7. 30	+ 10. 173
	Comet 1850, I. . .	56. 2	9. 0	22. 5	55 9. 23	2 44. 879		
July 20	4547, B. A. C. . .	28. 2	40. 0	52. 8	16 49 40. 33	1 49. 648	+ 2 38. 80	— 53. 678
	Comet 1850, I. . .	7. 2	19. 3	30. 9	52 19. 13	3 43. 246		
	4547, B. A. C. . .	26. 2	38. 3	50. 3	53 38. 27	1 49. 528	2 38. 26	55. 638
	Comet 1850, I. . .	4. 1	16. 5	29. 0	56 16. 53	3 45. 086		
	4547, B. A. C. . .	18. 0	30. 6	42. 9	57 30. 50	1 49. 353	2 38. 10	57. 289
	Comet 1850, I. . .	56. 5	8. 2	21. 1	17 0 8. 60	3 46. 562		
	4547, B. A. C. . .	43. 1		7. 2	1 55. 15	1 49. 230	2 37. 88	59. 089
	Comet 1850, I. . .	20. 9	33. 1	45. 1	4 33. 03	3 48. 239		
	4547, B. A. C. . .	41. 0	53. 2	5. 7	5 53. 30	1 49. 192	2 37. 86	60. 716
	Comet 1850, I. . .	19. 1	31. 2	43. 2	8 31. 16	3 49. 828		
	4547, B. A. C. . .	37. 3	49. 1	1. 7	9 49. 37	1 49. 128	2 37. 16	62. 415
	Comet 1850, I. . .	14. 1	26. 4	39. 1	12 26. 53	3 51. 463		
	4547, B. A. C. . .	40. 0	52. 3	4. 2	13 52. 23	1 49. 318	2 36. 67	63. 803
	Comet 1850, I. . .	17. 0	28. 4	41. 3	16 28. 90	3 53. 041		
	4547, B. A. C. . .	39. 1		3. 2	18 51. 15	1 48. 775	+ 2 37. 02	— 66. 464
	Comet 1850, I. . .	16. 0	28. 2	40. 3	21 28. 17	3 55. 159		

RESULTS.

Corr. Chron.		m. s. + 0 32. 04	
		α h. m. s.	δ ° ′ ″
4547, B. A. C.,		13 30 2. 83	— 2 28 8. 03
Comet—4547, B. A. C.,	h. m. s.	$\Delta\alpha$ m. s.	$\Delta\delta$ ′ ″
Sid. T.	17 7 3. 55	+ 2 37. 72	—15 20. 42
		$\Delta\rho$ — . 04	— . 73
		p + . 74	+ 11. 52

PARTHENOPE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
1850. July 11	Parthenope	35.1		0.0	16 53 47.55	1 24.820		
	Weisse XIV, 1016	17.0		42.0	54 29.50	1 42.880	— 0 41.95	+ 18.060
	Parthenope	56.1	8.0	21.0	17 29 8.37	1 25.818		
	Weisse XIV, 1016	37.5		2.5	29 50.00	1 42.560	0 41.63	16.742
	Parthenope	5.0	17.0	28.5	41 16.83	1 24.690		
	Weisse XIV, 1016	45.0		11.0	41 58.00	1 42.330	— 0 41.17	+ 17.640
July 14	Weisse XIV, 1016		34.2		16 6 34.20	1 37.468	+ 0 23.80	— 36.677
	Parthenope	46.0	58.0	10.0	6 58.00	2 43.978		
	Weisse XIV, 1016	10.3	22.5	34.2	12 22.33	1 37.671	0 23.74	36.567
	Parthenope	33.0	45.1	57.1	12 45.07	2 44.071		
	Weisse XIV, 1016	3.2	16.0	27.0	16 15.40	1 37.738	0 24.20	36.616
	Parthenope	27.2		52.0	16 39.60	2 44.187		
	Weisse XIV, 1016	41.1	53.7	6.5	18 53.77	1 37.890	0 23.88	36.497
	Parthenope	5.0		30.3	19 17.65	2 44.220		
	Weisse XIV, 1016	54.1	6.2		21 6.20	1 37.741	0 24.27	36.737
	Parthenope	18.1	30.3	43.0	21 30.47	2 44.311		
	Weisse XIV, 1016	50.3	3.2		22 3.20	1 37.689	0 23.57	36.648
	Parthenope	14.2	27.1	39.0	22 26.77	2 44.170		
	Weisse XIV, 1016	5.4	18.0		25 18.00	1 37.825	0 23.96	36.742
	Parthenope	29.1	42.5	54.3	25 41.96	2 44.506		
	Weisse XIV, 1016	59.2	11.7		33 11.70	1 37.859	+ 0 23.20	— 36.706
	Parthenope	22.5	34.7	47.5	33 34.90	2 44.398		
July 19	Weisse XIV, 1072	21.0	34.2	46.0	17 1 33.73	2 33.610	+ 0 11.34	+ 18.346
	Parthenope	33.0	45.0	57.2	1 45.70	1 45.431		
	Weisse XIV, 1072	39.2	51.9	4.1	3 51.73	2 33.333	0 11.40	18.269
	Parthenope	50.5	3.7	15.2	4 3.13	1 45.231		
	Weisse XIV, 1072	1.4	14.2	27.0	6 14.20	2 33.262	0 11.57	18.092
	Parthenope	13.5	25.7	38.1	6 25.77	1 45.337		
	Weisse XIV, 1072	7.9	21.0	33.0	8 20.63	2 33.447	0 11.44	18.313
	Parthenope	20.0	32.0	44.2	8 32.07	1 45.301		
	Weisse XIV, 1072	27.5	40.1	53.0	12 40.20	2 33.250	0 11.13	18.074
	Parthenope	39.0	51.0	4.0	12 51.33	1 45.343		
	Weisse XIV, 1072	51.0	4.2	16.2	15 3.80	2 33.242	+ 0 11.53	+ 17.789
	Parthenope	3.0	15.0	28.0	15 15.33	1 45.620		
Aug. 11	Weisse XV, 265	6.0		31.5	18 19 18.85	1 51.560	+ 0 10.65	— 55.553
	Parthenope	17.0		42.0	19 29.50	3 47.033		
	Weisse XV, 281		53.5	6.0	19 53.50	1 42.905	— 0 24.00	64.208
	Weisse XV, 265	28.1		53.2	23 40.65	1 51.467	+ 0 11.60	55.662
	Parthenope	39.5		5.0	23 52.25	3 47.049		
	Weisse XV, 281		15.7	28.0	24 15.70	1 42.645	— 0 23.45	64.484
	Weisse XV, 265	46.9		11.9	34 59.40	1 50.879	+ 0 12.30	55.801
	Parthenope	59.0		24.4	35 11.70	3 46.600		
	Weisse XV, 281		34.3	47.0	35 34.30	1 42.090	— 0 22.60	64.590
	Weisse XV, 265	54.3		19.1	38 6.70	1 50.723	+ 0 13.00	55.747
	Parthenope	7.1		32.3	38 19.70	3 46.390		
	Weisse XV, 281		41.9	55.3	18 38 41.90	1 42.045	— 0 22.20	— 64.425

RESULTS.

July 11.

Corr. Chron. + 7.00 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XIV, 1016,	14 54 11.61	—11 8 46.79

Parthenope—Weisse XIV, 1016,	h. m. s.	Δα (m. s.)	Δδ (′ ″)
Sid. T.	17 21 31.25	— 0 41.58	+ 4 28.66
Δρ		— .01	.24
p		+ .14	+ 3.63

July 14.

Corr. Chron + 12.16 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XIV, 1016,	14 54 11.57	—11 8 46.66

Parthenope—Weisse XIV, 1016,	h. m. s.	Δα (m. s.)	Δδ (′ ″)
Sid. T.	16 20 3.96	+ 0 23.83	— 9 23.28
Δρ		.00	— .41
p		+ .10	+ 3.70

July 19.

Corr. Chron. + 28.54 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XIV, 1072,	14 56 47.14	—11 48 22.15

Parthenope—Weisse XIV, 1072,	h. m. s.	Δα (m. s.)	Δδ (′ ″)
Sid. T.	17 8 37.32	+ 0 11.40	+ 4 38.91
Δρ		.01	.24
p		+ .12	+ 3.54

(Continued.)

PARTHENOPE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
Aug. 11	Weisse XV, 265	49.2		14.0	18 43 1.60	1	50.640	+ 0 13.05	− 55.824
	Parthenope	2.1		27.2	43 14.65	3	46.384		
	Weisse XV, 281		37.0	50.2	43 37.00	1	41.725	− 0 22.35	64.739
	Weisse XV, 265	52.9		18.7	47 5.80	1	50.623	+ 0 13.10	55.827
	Parthenope	6.1		31.7	47 18.90	3	46.370		
	Weisse XV, 281		40.9	54.0	47 40.90	1	41.760	− 0 22.00	64.690
	Weisse XV, 265	5.2		30.5	49 17.85	1	50.477	+ 0 13.40	55.863
	Parthenope	18.5		44.0	49 31.25	3	46.260		
	Weisse XV, 281		53.6	5.7	49 53.60	1	41.552	− 0 22.35	64.788
	Weisse XV, 265	56.3		21.0	53 8.65	1	50.190	+ 0 12.90	56.023
	Parthenope	9.1		34.0	53 21.55	3	46.133		
	Weisse XV, 281		44.0	56.0	53 44.00	1	41.461	− 0 22.45	64.752
	Weisse XV, 265	3.2		28.6	56 15.90	1	50.000	+ 0 13.10	56.052
	Parthenope	16.5		41.5	56 29.00	3	45.972		
	Weisse XV, 281		51.0	3.0	56 51.00	1	41.077	− 0 22.00	− 64.975
Aug. 12	Weisse XV, 249	58.1	10.0	22.7	17 21 10.27	3	33.290	+ 2 6.40	+ 43.173
	Parthenope		16.5	29.0	23 16.67	1	50.197		
	Weisse XV, 249	44.0	57.0		31 56.85	3	33.695	2 6.45	42.998
	Parthenope	50.9	3.0	16.0	34 3.30	1	50.777		
	Weisse XV, 249	39.1	51.0	3.8	35 51.30	3	33.655	2 7.10	42.965
	Parthenope	46.0	58.0	11.2	37 58.40	1	50.770		
	Weisse XV, 249	36.3	49.1	2.1	39 49.16	3	33.630	2 7.19	42.951
	Parthenope	43.7		9.0	41 56.35	1	50.759		
	Weisse XV, 249	39.5		5.0	43 52.25	3	33.558	2 7.60	43.048
	Parthenope	47.2		12.5	45 59.85	1	50.590		
	Weisse XV, 249	53.8	7.1	19.1	47 6.67	3	33.400	2 7.16	42.780
	Parthenope	1.3	14.0	26.2	50 13.83	1	30.700		
	Weisse XV, 249	30.0	42.3	55.0	52 42.43	3	33.350	+ 2 8.07	+ 42.810
	Parthenope	37.9	50.6	3.0	54 50.50	1	50.620		
Aug. 14	Parthenope	38.1	51.0	3.0	18 5 50.70	3	29.722		
	Weisse XV, 400	40.0	53.0	5.0	8 52.67	2	40.491	− 3 1.97	− 19.144
	Parthenope	58.0	10.5	23.0	10 10.50	3	29.992		
	Weisse XV, 400	59.5	12.0	25.0	13 12.17	2	40.170	3 1.67	19.734
	Parthenope	39.7	52.1	6.0	15 52.60	3	29.871		
	Weisse XV, 400	41.1	54.0	7.0	18 54.03	2	40.201	3 1.43	19.582
	Parthenope	44.0	56.9		19 56.90	3	29.755		
	Weisse XV, 400	45.2	57.1	10.5	22 57.60	2	40.082	3 0.70	19.585
	Parthenope	39.7		55.0	31 42.35	3	29.232		
	Weisse XV, 400	30.5	43.0	56.0	34 43.16	2	39.250	− 3 0.81	− 19.894
Aug. 15	Parthenope		8.0	21.0	17 29 8.22	3	31.732		
	Weisse XV, 400	52.7	5.1	18.0	31 5.07	1	47.150	− 1 56.85	− 44.662
	Parthenope		54.0	6.0	52 53.92	3	32.071		
	Weisse XV, 400	37.1	48.6	2.1	54 49.27	1	46.891	1 55.35	45.260
	Parthenope	59.5	12.2	25.1	59 12.27	3	32.121		
	Weisse XV, 400	54.2	7.1	20.0	18 1 7.10	1	47.129	1 54.83	45.072
	Parthenope	57.2	9.3	22.0	3 9.50	3	32.020		
	Weisse XV, 400	52.0	5.0	18.0	18 5 5.00	1	46.942	− 1 55.50	− 45.158

RESULTS.

Aug. 11

Corr. Chron. + 1 m. 29.61 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XV, 265,	15 15 11.70	−13 48 33.71
Weisse XV, 281,	15 15 47.02	13 46 17.68

Parthenope—Weisse XV, 265, Δ α, Δ δ

	h. m. s.		Δα (m. s.)		Δδ (′ ″)
Sid. T.	18 42 15.00		+ 0 12.57		−14 17.89
		Δρ	− .08	−	1.45
		p	+ .18	+	2.92

Parthenope—Weisse XV, 281.

	h. m. s.		Δα (m. s.)		Δδ (′ ″)
Sid. T.	18 42 15.00		− 0 22.60		−16 33.31
		Δρ	+ .09	−	1.67
		p	+ .18	+	2.92

Aug. 12

Corr. Chron. + 1 m. 31.56 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XV, 249,	15 14 18.01	−14 20 12.89

Parthenope—Weisse XV, 249, Δ α, Δ δ

	h. m. s.		Δα (m. s.)		Δδ (′ ″)
Sid. T.	17 42 42.83		+2 7.14		+11 0.27
		Δρ	.02		.70
		p	+ .13	+	3.14

Aug. 14

Corr. Chron. + 1 m. 39.00 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XV, 400,	15 21 36.47	−14 17 34.59

Parthenope—Weisse XV, 400, Δ α, Δ δ

	h. m. s.		Δα (m. s.)		Δδ (′ ″)
Sid. T.	18 18 21.61		− 3 1.32		− 5 1.05
		Δρ	+ .02	−	.34
		p	+ .15	+	3.05

(Continued.)

PARTHENOPE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Aug. 15	Parthenope - - -	45.7	58.0	10.8	18 6 58.17	3 31.730			Corr. Chron. + 1 42.43 (m. s.)
	Weisse XV, 400 - -	40.0	53.1	6.0	8 53.03	1 46.671	− 1 54.86	− 45.139	
	Parthenope - - -	57.2	9.4	22.5	10 9.70	3 31.940			α (h. m. s.) δ (° ′ ″)
	Weisse XV, 400 - -	51.9	4.7	17.5	12 4.70	1 46.782	1 55.00	45.238	Weisse XV, 400, 15 21 36.47 −14 17 34.55
	Parthenope - - -	47.4	0.1	12.9	14 0.13	3 31.900			Parthenope—Weisse XV, 400, Δ α Δ δ
	Weisse XV, 400 - -	42.1	55.0	8.0	15 55.03	1 46.618	1 54.90	45.362	Sid. T. (h. m. s.) 18 3 21.96 — 1 55.26 (m. s.) —11 34.46 (′ ″)
	Parthenope - - -	31.7	44.0	57.2	17 44.30	3 31.980			Δρ + .03 — .81
	Weisse XV, 400 - -	26.1	39.3	52.0	19 39.13	1 46.481	− 1 54.83	− 45.579	p + .14 + 3.08
Aug. 16	Parthenope - - -	49.0	1.0	13.2	17 52 1.06	3 40.881			
	Weisse XV, 400 - -		49.0	1.7	52 49.31	1 29.690	− 0 48.25	− 71.271	
	Parthenope - - -	32.0	44.2	57.1	55 44.43	3 40.840			
	Weisse XV, 400 - -		32.0	45.1	56 32.33	1 29.695	0 47.90	71.225	
	Parthenope - - -	55.0	8.0	20.5	58 7.83	3 40.871			
	Weisse XV, 400 - -	42.9	55.9	8.0	58 55.60	1 29.575	0 47.77	71.376	Corr. Chron. + 1 44.96 (m. s.)
	Parthenope - - -	39.2	51.6	4.0	18 0 51.60	3 40.919			α (h. m. s.) δ (° ′ ″)
	Weisse XV, 400 - -	27.1	39.0	52.0	1 39.37	1 29.622	0 47.77	71.377	Weisse XV, 400, 15 21 36.46 −14 17 34.52
	Parthenope - - -	41.2	52.7	6.0	2 53.30	3 40.905			
	Weisse XV, 400 - -	29.1	40.9	54.0	3 41.33	1 29.428	0 48.03	71.557	Parthenope—Weisse XV, 400, Δ α Δ δ
	Parthenope - - -	8.1		33.1	5 20.60	3 40.769			
	Weisse XV, 400 - -	56.5	9.3	21.5	6 9.10	1 29.287	0 48.50	71.562	Sid. T. (h. m. s.) 18 5 40.65 — 0 47.95 (m. s.) —18 18.42 (′ ″)
	Parthenope - - -	10.2	24.0	36.0	7 23.40	3 40.690			Δρ + .05 — 1.32
	Weisse XV, 400 - -	58.9	11.5	24.0	3 11.47	1 29.290	0 48.07	71.480	p + .14 + 3.07
	Parthenope - - -	31.7	43.2	57.0	9 43.96	3 40.812			
	Weisse XV, 400 - -	19.2	32.0	44.7	10 31.96	1 29.420	0 48.00	71.472	
	Parthenope - - -	49.7	2.0	15.0	12 2.23	3 40.732			
	Weisse XV, 400 - -	37.2	50.1	2.0	12 49.76	1 29.151	0 47.54	71.661	
	Parthenope - - -	56.0	8.5	21.0	15 8.50	3 40.699			
	Weisse XV, 400 - -	43.5	56.0	9.0	15 56.17	1 29.092	− 0 47.67	− 71.687	Corr. Chron. + 2 6.40 (m. s.)
Aug. 23	Parthenope - - -	24.7		49.2	18 36 36.95	2 33.688			α (h. m. s.) δ (° ′ ″)
	5184, B. A. C. - -	35.0	47.9	0.0	41 47.63	3 36.750	− 5 10.68	+ 32.974	5184, B. A. C. 15 34 21.73 —15 31 41.06
	Parthenope - - -	50.7	3.0	16.0	45 3.23	2 33.559			
	5184, B. A. C. - -	2.1	14.4	27.5	50 14.67	3 36.340	5 11.44	32.693	Parthenope—5184, B. A. C. Δ α Δ δ
	Parthenope - - -	11.2	23.9	36.2	53 23.76	2 33.293			
	5184, B. A. C. - -	20.0	33.3	45.2	58 32.83	3 35.842	− 5 9.07	+ 32.461	Sid. T. (h. m. s.) 18 47 7.71 — 5 10.40 (m. s.) + 8 22.72 (′ ″)
									Δρ — .04 .85
									p + .16 + 2.90
Aug. 25	Parthenope - - -	27.2	39.7	52.5	17 53 39.80	3 28.775			
	5184, B. A. C. - -	8.1	21.5	33.2	56 20.93	2 39.229	− 2 41.13	− 19.458	
	Parthenope - - -	9.2	21.9	34.0	59 21.70	3 28.431			
	5184, B. A. C. - -		2.1	15.2	2 2.40	2 39.241	2 40.70	19.102	
	Parthenope - - -	19.1	31.0	43.2	18 3 31.10	3 28.850			
	5184, B. A. C. - -	59.3	12.6	25.1	6 12.33	2 39.702	2 41.23	19.060	
	Parthenope - - -	44.0		9.2	10 56.60	3 27.962			
	5184, B. A. C. - -		37.2	49.2	13 37.20	2 39.209	2 40.60	18.665	
	Parthenope - - -	45.7	58.0	10.9	16 58.20	3 28.550			
	5184, B. A. C. - -	25.2	37.9	50.1	19 37.73	2 39.130	− 2 39.53	− 19.332	

PARTHENOPE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
Aug. 25	Parthenope . . .	18. 7	31. 5	44. 0	18 22 31. 40	3 26. 659		
	5184, B. A. C. . .	58. 2	10. 7	23. 8	25 10. 90	2 37. 160	— 2 39. 50	— 19. 411
	Parthenope . . .	17. 1	29. 0	42. 5	26 29. 53	3 26. 700		
	5184, B. A. C. . .	56. 3	9. 1	22. 0	29 9. 13	2 37. 091	3 39. 60	19. 521
	Parthenope . . .	11. 9	25. 0	37. 0	30 24. 63	3 26. 649		
	5184, B. A. C. . .	51. 2	4. 1	16. 8	33 4. 03	2 36. 959	2 39. 40	19. 602
	Parthenope . . .	27. 1	39. 7	52. 0	34 39. 60	3 26. 578		
	5184, B. A. C. . .	6. 0	19. 0	31. 2	37 18. 73	2 36. 720	— 2 39. 13	— 19. 770
Aug. 26	Parthenope . . .	57. 9	10. 0	23. 0	18 27 10. 30	3 26. 991		
	5184, B. A. C. . .	19. 5	32. 3	45. 1	28 32. 30	1 41. 209	— 1 22. 00	— 45. 862
	Parthenope . . .	26. 2	38. 5	50. 9	29 38. 53	3 26. 897		
	5184, B. A. C. . .	47. 5	0. 6	13. 2	31 0. 43	1 41. 160	1 21. 90	45. 817
	Parthenope . . .	47. 1	59. 7	12. 5	31 59. 77	3 26. 880		
	5184, B. A. C. . .	9. 0	21. 6	34. 3	33 21. 63	1 41. 022	1 21. 86	45. 938
	Parthenope . . .	20. 7	33. 1	46. 0	34 33. 27	3 26. 970		
	5184, B. A. C. . .	42. 2	54. 6	7. 0	35 54. 60	1 40. 990	1 21. 33	46. 060
	Parthenope . . .	12. 7	25. 1	37. 9	37 25. 23	3 26. 797		
	5184, B. A. C. . .	34. 1	46. 2	59. 2	38 46. 50	1 40. 900	— 1 21. 27	— 45. 977
Aug. 27	(° 23)	17. 6	30. 3	43. 2	18 3 30. 37	2 19. 020	+ 0 40. 96	— 46. 602
	Parthenope . . .	59. 0	11. 0	24. 0	4 11. 33	3 35. 710		
	(° 23)	59. 2	11. 7	23. 9	7 11. 60	2 18. 829	0 41. 67	46. 588
	Parthenope . . .	40. 2	53. 1	6. 5	7 53. 27	3 35. 505		
	(° 23)	14. 3	27. 0	40. 0	11 27. 10	2 18. 661	0 41. 40	46. 589
	Parthenope . . .	56. 0	8. 5	21. 0	12 8. 50	3 35. 338		
	(° 23)	45. 7	58. 1	11. 0	14 58. 27	2 18. 612	0 41. 80	46. 641
	Parthenope . . .	27. 2	40. 0	53. 0	15 40. 07	3 35. 341		
	(° 23)	55. 2	8. 1	21. 0	19 8. 10	2 18. 569	0 41. 80	46. 775
	Parthenope . . .	37. 2	50. 0	2. 5	19 49. 90	3 35. 432		
	(° 23)	17. 5	29. 7	42. 7	23 29. 97	2 18. 450	0 42. 16	46. 734
	Parthenope . . .	59. 4	12. 0	25. 0	24 12. 13	3 35. 272		
	(° 23)	0. 5	12. 5	25. 2	27 12. 73	2 18. 280	0 42. 80	46. 820
	Parthenope . . .	43. 2	55. 2	8. 2	27 55. 53	3 35. 188		
	(° 23)	41. 2	53. 5	6. 2	30 53. 63	2 18. 295	+ 0 42. 37	— 46. 828
	Parthenope . . .	23. 0	36. 0	49. 0	31 36. 00	3 35. 211		
Aug. 28	(° 23)	1. 8	14. 7	27. 1	17 56 14. 53	1 34. 751	+ 2 0. 35	— 72. 630
	Parthenope . . .		15. 0	27. 5	58 14. 88	3 47. 301		
	(° 23)	48. 5	1. 2	13. 5	18 0 1. 07	1 34. 831	2 0. 66	72. 650
	Parthenope . . .	48. 5	1. 7	15. 0	2 1. 73	3 47. 401		
	(° 23)	38. 1		4. 7	4 51. 40	1 34. 761	2 0. 77	72. 679
	Parthenope . . .	39. 7	52. 5	4. 3	6 52. 17	3 47. 360		
	(° 23)	49. 2	2. 1	15. 0	10 2. 10	1 34. 575	+ 2 1. 00	72. 725
	Parthenope . . .	50. 0	3. 3	16. 0	12 3. 10	3 47. 220		
	(° 23)	52. 1	4. 3	17. 9	13 4. 77	1 34. 801	+ 2 0. 96	— 72. 673
	Parthenope . . .	52. 9	5. 7	18. 6	15 5. 73	3 47. 396		

RESULTS.

Corr. Chron.		m. s. + 2 12. 22	
		α h. m. s.	δ ° ′ ″
5184, B. A. C.		15 34 21. 69	—15 31 40. 75
Parthenope—5184, B. A. C.	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	17 17 35. 84	— 2 40. 09	— 4 57. 00
	Δ ρ	+ . 06	— . 27
	p	+ . 09	+ 3. 07

Corr. Chron.		m. s. + 2 15. 00	
		α h. m. s.	δ ° ′ ″
5184, B. A. C.		15 34 21. 66	—15 31 40. 59
Parthenope—5184, B. A. C.	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	18 34 24. 42	— 1 21. 67	—11 45. 94
	Δ ρ	+ . 05	— 1. 02
	p	+ . 15	+ 2. 91

Corr. Chron.		m. s. + 2 17. 76	
		α h. m. s.	δ ° ′ ″
(° 23)		15 33 35. 72	—15 38 15. 40
Parthenope—(° 23)	h. m. s.	Δ α m. s.	Δ δ ′ ″
Sid. T.	17 20 13. 60	+ 0 41. 87	—11 55. 57
	Δ ρ	— . 03	— . 96
	p	+ . 14	+ 2. 94

(Continued.)

PARTHENOPE.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.	RESULTS.
		s.	s.	s.	h. m s.	w.	revs.	m. s.	revs.	
850. g. 28	(° 23)	59.7	12.1	25.1	18 17 12.20	1	34.311	+ 2 1.58	— 72.859	m. s. Corr. Chron. + 2 19.44
	Parthenope	1.0	14.0	26.2	19 13.73	3	47.090			α δ
	(° 23)	39.2	51.3	4.1	21 51.53	1	34.200	2 1.64	73.240	h. m. s. ° ′ ″ (° 23) 15 33 35.70 —15 38 15.36
	Parthenope	39.7	52.8	7.0	23 53.17	3	47.360			
	(° 23)	8.7	20.3	33.2	26 20.73	1	34.192	2 1.70	73.188	Parthenope — (° 23) Δα Δδ
	Parthenope	9.2	22.1	36.0	28 22.43	3	47.300			h. m. s. m. s. ′ ″
	(° 23)	14.1	26.2	39.6	31 26.63	1	34.090	+ 2 2.04	— 73.132	Sid. T. 18 17 47.84 + 2 1.18 —18 39.86
	Parthenope	16.2	28.5	41.3	33 28.67	3	47.142			Δρ — .05 — 1.47 p + .14 + 2.92
g. 29	(° 24)	1.3	14.1	27.5	17 58 14.30	1	44.209	+ 0 54.03	— 32.443	
	Parthenope	55.5	8.0	21.5	59 8.33	2	46.485			m. s. Corr. Chron. + 2 24.35
	(° 24)	32.2	45.2	58.0	18 0 45.13	1	44.020	0 53.97	32.597	
	Parthenope	26.2	39.1	52.0	1 39.10	2	46.450			α δ
	(° 24)	15.3	28.0	41.0	3 28.10	1	44.022	0 53.93	32.677	h. m. s. ° ′ ″ (° 24) 15 36 2.50 —15 55 17.94
	Parthenope	9.1	22.0	35.0	4 22.03	2	46.532			Parthenope — (° 24) Δα Δδ
	(° 24)	22.5	35.7	48.5	5 35.57	1	44.027	0 54.13	32.719	h. m. s. m. s. ′ ″
	Parthenope	17.0	29.5	42.6	6 29.70	2	46.579			Sid. T. 18 16 4.72 + 0 54.48 — 8 24.34
	(° 24)	17.8	30.4	43.7	7 30.63	1	43.905	0 54.40	33.172	Δρ — .02 — .65 p + .13 + 2.91
	Parthenope	12.0	25.1	38.0	8 25.03	2	46.910			
	(° 24)	27.0	40.3	53.1	9 40.13	1	43.882	0 54.17	32.675	
	Parthenope	21.9	34.0	47.0	10 34.30	2	46.390			
	(° 24)	49.7	2.7	15.4	12 2.60	1	43.896	0 54.46	32.630	
	Parthenope	43.9	57.1	10.2	12 57.06	2	46.359			
	(° 24)	27.9	41.0	53.5	14 40.80	1	43.865	0 54.27	32.640	
	Parthenope	22.0	35.2	48.0	15 35.07	2	46.338			
	(° 24)	47.0	58.9	12.0	16 59.30	1	43.686	0 54.45	33.331	
	Parthenope	40.5		7.0	17 53.75	2	46.850			
	(° 24)	38.5	51.5	4.2	20 51.40	1	43.632	0 54.87	32.885	
	Parthenope	33.7	46.1	59.0	21 46.27	2	46.350			
	(° 24)	48.7	1.0	14.5	23 1.40	1	43.570	0 54.70	32.912	
	Parthenope	43.2	56.0	9.1	23 56.10	2	46.315			
	(° 24)	14.2	27.1	39.2	25 26.83	1	43.520	0 55.47	32.882	
	Parthenope	9.7	22.2	35.0	26 22.30	2	46.236			
	(° 24)	27.6	40.6	52.9	27 40.37	1	43.412	+ 0 55.46	— 33.020	
	Parthenope	23.0	35.5	49.0	28 35.83	2	46.265			
ug. 30	(° 24)	21.7	34.0		18 38 34.20	1	33.859	+ 2 18.20	— 59.311	m. s.
	Parthenope	39.5	52.7	5.0	40 52.40	3	33.090			Corr. Chron. +2 27.00
	(° 24)	5.6	18.2		43 18.30	1	33.601	2 17.90	59.486	α δ h. m. s. ° ′ ″
	Parthenope	23.4	36.2	49.0	45 36.20	3	33.007			(° 24) 15 36 2.50 —15 55 17.91
	(° 24)	9.5		35.2	47 22.35	1	33.540	+ 2 17.65	— 59.189	Parthenope — (° 24) Δα Δδ
	Parthenope	27.1	40.0		49 40.00	3	32.649			h. m. s. m. s. ′ ″ Sid. T. 18 47 49.88 + 2 17.92 —15 11.85 Δρ — .08 — 1.50
ug. 31	28697, Lalande	57.2		22.5	18 3 9.85	3	34.289	+ 2 18.15	+ 44.371	p + .15 + 2.84
	Parthenope	15.0	28.0	41.0	5 28.00	1	49.998			
	28697, Lalande	37.3	50.2	3.7	18 7 50.40	3	34.141	+ 2 17.60	+ 44.302	
	Parthenope		8.1	21.0	10 8.00	1	49.919			(Continued.)

PARTHENOPE.

DATE.	OBJECTS.	Observed times of transit.				Mic.	Planet—Star.		RESULTS.
		A.	B.	C.	Mean.		Δα	Δ mic.	
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Aug. 31	28697, Lalande - -	4.4	18.1	30.7	18 13 17.73	3 34.081	+ 2 18.44	+ 44.441	m. s. Corr. Chron. + 2 30.60 α δ h. m. s. ° ′ ″ 28697, Lalande, 15 37 21.51 —16 28 31.32 Parthenope — 28697, Lalande, Δα Δδ h. m. s. m. s. ′ ″ Sid. T. 18 28 0.45 + 2 19.41 +11 17.97 Δρ — .04 .97 p + .16 + 2.88
	Parthenope - - -	23.0	36.0	49.5	15 36.17	1 49.720			
	28697, Lalande - -	23.0	35.8	48.5	17 35.77	3 34.020	2 19.63	44.039	
	Parthenope - - -	43.0	55.2	8.0	19 55.40	1 50.061			
	28697, Lalande - -	31.5	44.2	57.1	25 44.27	3 33.915	2 19.30	44.173	
	Parthenope - - -	51.0	3.7	16.0	28 3.57	1 49.822			
	28697, Lalande - -	56.4	9.2	22.3	30 9.80	3 33 612	2 20.20	44.155	
	Parthenope - - -	17.0	29.5	42.0	32 29.50	1 49.537			
	28697, Lalande - -	4.1	16.3	29.7	39 16.70	3 33.305	2 20.73	43.836	
	Parthenope - - -	25.1	37.2	50.0	41 37.43	1 49.549			
	28697, Lalande - -	7.1	19.5	32.0	48 19.53	3 32.871	+ 2 21.20	+ 43.573	
	Parthenope - - -	27.5	41.0	53.7	50 40.73	1 49.378			
Sept. 2	Parthenope - - -	54.1		19.5	19 14 6.80	3 34.105			m. s. Corr. Chron. + 2 37.53 α δ h. m. s. ° ′ ″ 5257, B. A. C. 15 45 18.68 —16 17 2.78 Parthenope — 5257, B. A. C. Δα Δδ h. m. s. m. s. ′ ″ Sid. T. 19 24 0.04 — 2 47.03 —13 43.31 Δρ + .10 — 1.98 p + .17 + 2.76
	5257, B. A. C. - -	41.7	54.0	7.0	16 54.23	1 41.288	— 2 47.43	— 52.897	
	Parthenope - - -	51.7		17.0	19 4.35	3 33.668			
	5257, B. A. C. - -	38.2	51.3	4.2	21 51.23	1 40.050	2 46.88	53.698	
	Parthenope - - -	6.2	19.0	31.0	23 18.73	3 33.335			
	5257, B. A. C. - -	53.3	5.7	18.2	26 5.73	1 39.850	2 47.00	53.565	
	Parthenope - - -	47.5	0.0	13.0	29 0.17	3 33.188			
	5257, B. A. C. - -	34.0	47.0	0.0	31 47.00	1 39.149	— 2 46.83	— 54.119	
Sept. 3	Parthenope - - -	20.7	33.0	45.5	18 11 33.07	3 47.149			m. s. Corr. Chron. + 2 40.15 α δ h. m. s. ° ′ ″ 5257, B. A. C. 15 45 18.68 —16 17 [2.78 Parthenope — 5257, B. A. C. Δα Δδ h. m. s. m. s. ′ ″ Sid. T. 18 42 36.19 — 1 24.62 —20 18.07 Δρ + .09 — 1.86 p + .14 + 2.91
	5257, B. A. C. - -	47.0	59.6	12.5	12 59.70	1 28.375	— 1 26.63	— 78.454	
	Parthenope - - -	2.0	15.0	27.7	16 14.97	3 47.145			
	5257, B. A. C. - -		41.2	53.8	17 41.12	1 28.201	1 26.15	79.024	
	Parthenope - - -	8.1	21.0	33.2	22 20.77	3 46.981			
	5257, B. A. C. - -	32.5	46.0	59.2	23 46.33	1 28.185	1 25.56	78.876	
	Parthenope - - -	0.7		26.0	28 13.35	3 47.080			
	5257, B. A. C. - -	25.9	38.3	51.6	29 38.60	1 28.062	1 25.25	79.098	
	Parthenope - - -	15.7		41.2	33 28.45	3 47.120			
	5257, B. A. C. - -	40.8	53.6	6.1	34 53.50	1 28.108	1 25.05	79.092	
	Parthenope - - -	57.2	9.7	23.2	38 10.03	3 46.927			
	5257, B. A. C. - -	22.7	35.1	47.7	39 35.17	1 27.681	1 25.14	79.326	
	Parthenope - - -	3.1	16.0	28.2	42 15.77	3 46.791			
	5257, B. A. C. - -		39.7	53.1	43 40.07	1 27.550	1 24.30	79.321	
	Parthenope - - -	12.0	24.9	38.0	47 24.97	3 46.575			
	5257, B. A. C. - -	36.7	49.2	2.2	48 49.37	1 27.134	1 24.40	79.521	
	Parthenope - - -	1.5	14.6	27.0	52 14.20	3 46.568			
	5257, B. A. C. - -	25.4	38.0	50.9	53 38.10	1 27.229	1 23.90	79.419	
	Parthenope - - -	54.9		20.3	57 7.60	3 46.265			
	5257, B. A. C. - -	18.2	31.3	44.0	58 31.17	1 26.850	1 23.57	79.495	
	Parthenope - - -	2.5	15.1	28.0	19 2 15.20	3 45.987			
	5257, B. A. C. - -	26.1	38.2	51.0	3 38.43	1 26.332	1 23.23	79.735	
	Parthenope - - -	41.2	54.0	7.1	7 54.10	3 45.732			
	5257, B. A. C. - -	3.9	16.2	29.1	19 9 16.40	1 26.130	— 1 22.30	— 79.682	

PARTHENOPE.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.
.850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
›t. 6	(° 25) - - - - -	41.0	54.0	6.8	19 8 53.93	1	42.628	+ 1 19.52	— 34.999
	Parthenope - - -	0.9		26.0	10 13.45	2	47.460		
	(° 25) - - - - -	17.9	30.2	43.0	11 30.37	1	42.586	1 19.20	35.181
	Parthenope - - -	37.0	49.7	2.0	12 49.57	2	47.600		
	(° 25) - - - - -	27.2	40.2	53.1	15 40.16	1	42.273	1 19.94	35.329
	Parthenope - - -	47.2	0.0	13.1	16 0.10	2	47.435		
	(° 25) - - - - -	50.9	3.2	16.2	24 3.43	1	41.631	1 20.67	35.508
	Parthenope - - -	11.3	24.0	37.0	25 24.10	2	46.972		
	(° 25) - - - - -	56.1	8.7	21.6	28 8.80	1	41.322	+ 1 20.36	— 35.405
	Parthenope - - -	16.0	29.5	42.0	29 29.16	2	46.560		
›t. 10	Parthenope - - -	15.2	28.0	41.0	18 42 28.07	1	42.530		
	29306, Lalande - -	42.1	54.6	7.9	46 54.87	2	42.875	— 4 26.80	+ 30.512
	Parthenope - - -	5.2		31.0	51 18.10	1	42.545		
	29306, Lalande - -	31.5	44.2	57.0	55 44.23	2	42.601	4 26.13	30.223
	Parthenope - - -	40.2		6.5	59 53.35	1	42.385		
	29306, Lalande - -	6.2	19.1	32.0	19 4 19.00	2	42.289	4 25.65	30.071
	Parthenope - - -	35.1		1.0	8 48.05	1	42.242		
	29306, Lalande - -	0.4	13.8	26.5	13 13.57	2	42.060	— 4 25.52	+ 29.985
›t. 11	Parthenope - - -	48.0	1.0	14.0	18 26 1.00	2	29.710		
	29306, Lalande - -	44.7	57.2	10.0	28. 57.30	2	35.223	— 2 56.30	+ 5.513
	Parthenope - - -	34.0		1.0	30 47.50	2	29.900		
	29306, Lalande - -	30.3	43.0	56.0	33 43.10	2	35.152	2 55.60	5.252
	Parthenope - - -	42.5	55.2	8.0	35 55.23	2	29.755		
	29306, Lalande - -	39.1	51.7	4.0	38 51.60	2	35.042	2 56.37	5.287
	Parthenope - - -	55.6	8.5	21.5	41 8.53	2	29.800		
	29306, Lalande - -	51.7	4.2	17.2	44 4.37	2	34.850	2 55.84	5.050
	Parthenope - - -	12.7	25.1	38.0	45 25.26	2	29.675		
	29306, Lalande - -	7.2	20.0	33.2	48 20.13	2	34.738	2 54.87	5.063
	Parthenope - - -	25.2	37.7	50.8	49 37.90	2	29.488		
	29306, Lalande - -	20.3	32.5	45.7	52 32.83	2	34.528	2 54.93	5.040
	Parthenope - - -	39.1	52.0	4.1	55 51.73	2	29.529		
	29306, Lalande - -	34.3	46.2	59.2	58 46.57	2	34.312	2 54.84	4.783
	Parthenope - - -	33.2		59.0	19 0 46.10	2	29.250		
	29306, Lalande - -	27.8	40.0	53.5	3 40.43	2	34.121	— 2 54.33	+ 4.871
›pt. 12	Parthenope - - -	33.0	46.2		18 53 46.02	3	34.182		
	29306, Lalande - -	55.2	8.1	20.9	55 8.07	2	43.841	— 1 22.05	— 20.253
	Parthenope - - -	25.0	38.0		19 4 37.91	3	33.670		
	29306, Lalande - -	46.5	59.0	12.0	5 59.16	2	43.355	1 21.25	20.227
	Parthenope - - -	0.0		25.5	8 12.75	3	33.700		
	29306, Lalande - -	21.1	34.0	47.2	9 34.10	2	43.051	1 21.35	20.561
	Parthenope - - -	26.0	38.7	52.0	11 38.90	3	33.509		
	29306, Lalande - -	47.5	0.7	13.0	13 0.40	2	42.831	1 21.50	20.590
	Parthenope - - -		17.0	29.2	29 16.68	3	32.471		
	29306, Lalande - -	23.5	36.4	49.1	30 36.33	2	41.595	— 1 19.65	— 20.788

RESULTS.

Corr. Chron. + 2m 48.80s

	α (h. m. s.)	δ (° ′ ″)
(° 25)	15 46 56.37	—16 48 33.35

Parthenope—(° 25)

	h. m. s.	Δα (m. s.)	Δδ (′ ″)
Sid. T.	19 21 36.08	+ 1 19.94	— 9 2.30
	Δρ	— .08	— 1.30
	p	+ .16	+ 2.72

Corr. Chron. + 3m 0.99s

	α (h. m. s.)	δ (° ′ ″)
29306, Lalande,	15 58 39.27	—17 31 34.12

Parthenope—29306, Lalande,

	h. m. s.	Δα (m. s.)	Δδ (′ ″)
Sid. T.	18 58 37.88	— 4 26.02	+ 7 44.11
	Δρ	— .04	.70
	p	+ .14	+ 2.75

Corr. Chron. + 3m 3.07s

	α (h. m. s.)	δ (° ′ ″)
29306, Lalande,	15 58 39.26	—17 31 34.08

Parthenope—29306, Lalande,

	h. m. s.	Δα (m. s.)	Δδ (′ ″)
Sid. T.	18 46 14.73	— 2 55.38	+ 1 18.49
	Δρ	.00	.11
	p	+ .13	+ 2.78

Corr. Chron. + 3m 5.98s

	α (h. m. s.)	δ (° ′ ″)
29306, Lalande,	15 58 39.24	—17 30 34.04

Parthenope—29306, Lalande,

	h. m. s.	Δα (m. s.)	Δδ (′ ″)
Sid. T.	19 12 36.43	— 1 21.16	— 5 14.83
	Δρ	+ .03	— .61
	p	+ .15	+ 2.67

PARTHENOPE.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	m. s.
Sept. 13	29306, Lalande - -	14.2		39.7	19 2 26.95	1 37.840	+ 0 11.50	— 45.462	Corr. Chron. + 3 9.10
	Parthenope - - -	25.7		51.2	2 38.45	3 23.222			
	29306, Lalande - -	7.2		32.5	5 19.85	1 37.848	0 11.95	45.304	α δ
	Parthenope - - -	19.3		44.3	5 31.80	3 23.072			h. m. s. ° ′ ″
	29306, Lalande - -	30.1		56.1	8 43.10	1 37.748	0 12.30	45.464	29306, Lalande, 15 58 39.23 —17 31 34.00
	Parthenope - - -	42.5		8.3	8 55.40	3 23.132			Parthenope—29306, Lalande, Δα Δδ
	29306, Lalande - -	58.2		23.5	14 10.85	1 37.549	0 12.30	45.431	h. m. s. m. s. ′ ″
	Parthenope - - -	10.3		36.0	14 23.15	3 22.900			Sid. T. 19 11 36.63 + 0 12.18 —11 40.39
	29306, Lalande - -	23.0		49.0	20 36.00	1 37.042	+ 0 12.85	— 45.620	Δρ .07 + 1.32
	Parthenope - - -	36.2		1.5	20 48.85	3 22.582			p + .15 + 2.68
Sept. 17	Parthenope - - -	2.0	15.2	28.0	18 41 15.07	2 45.350			
	5408, B. A. C. - -	53.5	6.5	19.7	42 6.47	2 45.790	— 0 51.40	+ 0.440	m. s.
	Parthenope - - -	26.8	39.5	52.3	45 39.53	2 45.387			Corr. Chron. + 3 21.22
	5408, B. A. C. - -		29.7	43.2	46 30.08	2 45.757	0 50.55	0.370	α δ
	Parthenope - - -	48.1	1.0	13.2	50 0.77	2 45.205			h. m. s. ° ′ ″
	5408, B. A. C. - -	37.9	51.5	4.2	50 51.20	2 45.586	0 50.43	0.381	5408, B. A. C. 16 6 1.54 —18 8 41.64
	Parthenope - - -	34.1	47.2	0.2	59 47.17	2 43.969			Parthenope—5408, B. A. C. Δα Δδ
	5408, B. A. C. - -		37.0	50.0	19 0 36.97	2 44.235	0 49.80	0.266	h. m. s. m. s. ′ ″
	Parthenope - - -	1.5	14.0	27.2	5 14.23	2 43.869			Sid. T. 19 8 44.80 — 0 49.43 + 0 2.12
	5408, B. A. C. - -	49.7	3.5	16.1	6 3.10	2 44.148	0 48.87	0.279	Δρ — .00 .00
	Parthenope - - -	26.0	39.3	52.2	7 39.16	2 43.850			p + .14 + 2.67
	5408, B. A. C. - -		28.7	41.9	8 28.71	2 43.879	0 49.55	0.029	
	Parthenope - - -	33.0	46.0	59.0	9 46.07	2 43.778			
	5408, B. A. C. - -	21.5	34.6	47.7	10 34.66	2 43.851	0 48.59	+ 0.073	
	Parthenope - - -	12.7	25.2	38.0	12 25.30	2 43.684			
	5408, B. A. C. - -	1.8	14.2	27.5	13 14.33	2 43.683	0 49.03	— 0.001	
	Parthenope - - -	6.8	19.5	32.0	15 19.43	2 43.517			
	5408, B. A. C. - -	56.2	9.0	22.0	16 9.07	2 43.582	0 49.64	+ 0.065	
	Parthenope - - -	1.2	13.7	27.0	17 13.97	2 43.388			
	5408, B. A. C. - -	49.1	2.3	15.9	18 2.43	2 43.333	0 48.46	— 0.055	
	Parthenope - - -	4.5	17.7	30.2	19 17.47	3 43.432			
	5408, B. A. C. - -	53.0	6.2	19.2	20 6.13	2 43.327	0 48.66	0.108	
	Parthenope - - -	52.0	4.7	17.5	21 4.73	2 43.313			
	5408, B. A. C. - -	40.0	53.2	5.6	21 52.93	2 43.229	— 0 48.20	— 0.084	
Sept. 21	29696, Lalande - -	52.8	5.2	18.7	18 50 5.57	1 39.009	+ 0 48.60	— 22.292	m. s.
	Parthenope - -		54.1	7.0	50 54.17	2 31.134			Corr. Chron. — 1 24.58
	29696, Lalande - -	52.2	4.8	17.9	53 4.96	1 39.050	0 48.77	22.287	α δ
	Parthenope - - -	41.0	53.7	6.5	53 53.73	2 31.170			h. m. s. ° ′ ″
	29696, Lalande - -	32.5	45.0	58.2	55 45.23	1 38.740	0 48.90	22.656	29696, Lalande, 16 10 54.49 —18 27 30.12
	Parthenope - - -		34.0	47.0	56 34.13	2 31.229			Parthenope—29696, Lalande, Δα Δδ
	29696, Lalande - -	59.2	12.5	25.7	58 12.46	1 38.792	0 48.91	22.606	h. m. s. m. s. ′ ″
	Parthenope - - -	48.6	1.5	14.0	59 1.37	2 31.231			Sid. T. 18 58 15.07 + 0 49.14 — 5 46.22
	29696, Lalande - -	16.2	29.3	42.5	19 2 29.33	1 38.540	0 48.93	22.677	Δρ — .02 — .56
	Parthenope - - -	5.8	18.0	31.0	3 18.26	2 31.050			p + .12 + 2.66
	29696, Lalande - -	50.2	2.9	16.0	5 3.03	1 38.520	+ 0 50.04	— 22.675	
	Parthenope - - -	40.0	53.2	6.0	5 53.07	2 31.028			(Continued.)

PARTHENOPE.

[DA]TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
[18]70.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
21	29696, Lalande . .	0.0	13.0	26.0	19 7 13.00	1	38.404	+ 0 49.85	− 22.484
	Parthenope . . .	49.7		16.0	8 2.85	2	30.721		
22	29696, Lalande . .	55.0	8.0	21.2	18 55 8.07	1	52.090	+ 2 28.80	− 46.260
	Parthenope . . .	24.0	37.1	49.5	57 36.87	3	38.270		
	29696, Lalande . .	45.2	58.1	11.3	59 58.20	1	46.785	2 28.37	45.877
	Parthenope . . .	13.5	26.7	39.5	19 2 26.57	3	32.582		
	29696, Lalande . .	10.3	23.4	36.6	4 23.30	1	46.732	2 29.70	46.009
	Parthenope . . .	40.0	53.0	6.0	6 53.00	3	32.661		
	29696, Lalande . .	5.7	18.5	31.7	9 18.63	1	46.397	2 29.50	46.293
	Parthenope . . .	35.2	48.0	1.2	11 48.13	3	32.610		
	29696, Lalande . .	29.0	42.0	54.0	13 41.67	1	46.411	2 30.33	46.348
	Parthenope . . .	59.0	12.0	25.0	15 12.00	3	32.679		
	29696, Lalande . .	44.2	57.1	10.5	18 57.26	1	46.230	2 30.31	46.440
	Parthenope . . .	15.2	27.0	40.5	21 27.57	3	32.590		
	29696, Lalande . .	56.2	8.7	22.0	25 8.97	1	45.880	2 30.83	46.736
	Parthenope . . .	27.4	40.0	52.0	27 39.80	3	32.536		
	29696, Lalande . .	59.3	12.5	35.2	30 12.33	1	45.461	+ 2 31.65	+ 46.731
	Parthenope . . .		44.0	57.0	32 43.98	3	32.112		
23	29696, Lalande . .	44.9	58.5	11.5	18 51 58.30	1	34.470	+ 4 9.46	− 69.500
	Parthenope . . .	55.0	8.0	20.0	56 7.76	3	43.890		
	29696, Lalande . .	14.0	27.1	39.1	59 26.73	1	34.342	4 9.34	69.558
	Parthenope . . .	23.2	36.0	49.0	19 3 36.07	3	43.820		
	29696, Lalande . .	14.1		39.0	6 26.55	1	34.340	4 10.61	69.615
	Parthenope . . .	24.2	37.3	50.0	10 37.16	3	43.875		
	29696, Lalande . .	5.0	17.8	30.2	13 17.67	1	33.850	4 11.25	69.875
	Parthenope . . .		28.5	42.0	17 28.92	3	43.645		
	29696, Lalande . .	1.2	13.5	26.5	20 13.73	1	33.640	+ 4 11.44	− 69.837
	Parthenope . . .	12.0	25.5	38.0	24 25.17	3	43.397		
1	Parthenope . . .		33.0	46.2	19 24 33.12	1	48.322		
	5580, B. A. C. . .	30.7	44.1	56.2	28 43.67	2	42.598	− 4 10.55	+ 24.443
	Parthenope . . .	57.5	10.4	24.0	30 10.63	1	48.052		
	5580, B. A. C. . .	7.1	20.2	33.5	34 20.26	2	42.818	4 9.63	24.433
	Parthenope . . .	13.0	26.0	39.0	40 26.00	1	48.049		
	5580, B. A. C. . .	22.0	34.7	48.1	44 34.70	2	42.215	4 8.70	24.333
	Parthenope . . .	49.7		16.0	49 2.85	1	47.743		
	5580, B. A. C. . .	58.3	11.2	24.3	53 11.26	2	41.880	4 8.41	24.304
	Parthenope . . .	59.6		26.0	54 12.80	1	47.313		
	5580, B. A. C. . .	8.3	20.8	34.1	58 21.07	2	41.278	− 4 8.20	+ 24.132
2	Parthenope . . .	54.0	7.2		19 21 7.03	2	32.421		
	5580, B. A. C. . .	17.4	30.0	43.0	23 30.13	2	35.633	− 2 23.10	+ 3.212
	Parthenope . . .	3.5	16.2	29.4	26 16.37	2	32.127		
	5580, B. A. C. . .	26.4	39.2	52.0	28 39.20	2	35.342	2 22.83	3.215
	Parthenope . . .	54.4		21.0	30 7.70	2	32.010		
	5580, B. A. C. . .	17.5	31.0	44.0	19 32 30.83	2	35.208	− 2 23.13	+ 3.198

RESULTS.

		α	δ
Corr. Chron.		m. s. − 1 20.53	
		h. m. s.	° ′ ″
29696, Lalande,		16 10 54.47	−18 27 30.09
Parthenope — 29696, Lalande,		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	19 13 7.96	+ 2 29.94	−11 52.20
	Δ ρ	.06	+ 1.29
	p	+ .13	+ 2.58

		α	δ
Corr. Chron.		m. s. + 1 18.80	
		h. m. s.	° ′ ″
29696, Lalande,		16 10 54.45	−18 27 30.06
Parthenope — 29696, Lalande,		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	19 9 0.50	+ 4 10.42	−17 50.90
	Δ ρ	− .09	− 1.91
	p	+ .13	+ 2.63

		α	δ
Corr. Chron.		m. s. − 0 52.57	
		h. m. s.	° ′ ″
5580, B. A. C.		16 33 6.10	−19 37 51.35
Parthenope—5580, B. A. C.		Δ α	Δ δ
	h. m. s.	m. s.	′ ″
Sid. T.	19 38 48.51	− 4 9.10	+ 6 13.72
	Δ ρ	− .04	.79
	p	+ .13	+ 2.55

(Continued.)

FLORA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s	s.	s.	h. m. s.	w. revs.	m. s.	revs.	m. s.
Sept. 17	Weisse, 0.444 - -	10.0	22.2	35.0	22 19 22.40	2 21.570	+ 1 25.10	+ 10.120	Corr. Chron. + 3 21.60
	Flora - - - - -	35.0	47.5	0.0	20 47.50	2 11.450			α δ
	Weisse, 0.444 - -	1.5	14.3	26.1	0 15 13.97	2 26.239	1 21.36	7.569	h. m. s. ° ′ ″
	Flora - - - - -	23.0	35.0	48.0	16 35.33	2 18.670			Weisse, 0.444, 0 26 14.91 — 9 32 31.63
	Weisse, 0.444 - -	22.2	33.9	47.0	19 34.37	2 25.981	19 1.56	7.341	Flora — Weisse, 0.444, Δ α Δ δ h. m. s. m s ′ ″
	Flora - - - - -	42.0	54.0	7.0	20 54.33	2 18.640			Sid. T. 0 2 24.00 + 1 23.38 + 2 19.51
	Weisse, 0.444 - -	36.2	48.1	1.0	24 48.43	2 25.910	+ 1 20.90	+ 7.030	Δρ .00 .09
	Flora - - - - -	57.0	9.0	22.0	26 9.33	2 18.880			p — .05 + 7.03
Sept. 20	Weisse, 0.421 - -	41.0	53.7	6.0	22 1 53.57	1 46.211	+ 0 21.66	— 12.838	m. s.
	Flora - - - - -	3.0	15.7	27.0	2 15.23	2 28.882			Corr. Chron. — 1 28.30
	Weisse, 0.421 - -	15.5	28.1	40.5	4 28.03	1 46.222	0 21.50	12.906	α δ h. m. s. ° ′ ″
	Flora - - - - -	37.5	49.0	2.1	4 49.53	2 28.961			Weisse, 0.421, 0 25 2.62 — 9 51 27.29
	Weisse, 0.421 - -	41.7	54.0	7.5	6 54.40	2 16.013	0 21.17	13.119	Flora — Weisse, 0.421, Δ α Δ δ
	Flora - - - - -	3.5	15.2	28.0	7 15.57	2 29.132			h. m. s. m. s. ′ ″
	Weisse, 0.421 - -	44.1	56.7	10.0	9 56.93	2 16.191	0 20.92	13.077	Sid. T. 22 7 35.57 + 0 21.18 — 3 20.69
	Flora - - - - -	5.2		30.5	10 17.85	2 29.268			Δρ .00 — .16
	Weisse, 0.421 - -	45.0	57.6	10.5	12 57.70	2 16.180	0 20.70	13.159	p — .28 + 6.90
	Flora - - - - -	6.0	18.2	31.0	13 18.40	2 29.339			
	Weisse, 0.421 - -	53.0	5.2	18.3	16 5.50	2 16.295	+ 0 21.15	— 13.247	
	Flora - - - - -	14.2		39.1	16 26.65	2 29.542			
Sept. 21	Flora - - - - -	6.0	19.1	31.5	23 4 18.87	3 34.110			m. s.
	Weisse, 0.421 - -		49.0	1.5	4 48.92	1 48.360	— 0 30.05	— 45.830	Corr. Chron. — 1 24.28
	Flora - - - - -	9.2	22.3	34.2	8 21.90	3 34.250			α δ
	Weisse, 0.421 - -		52.0	5.2	8 52.25	1 48.505	0 30.35	45.825	h. m. s. ° ′ ″
	Flora - - - - -	12.2	24.0	37.5	16 24.57	3 34.456			Weisse, 0.421, 0 25 2.62 — 9 51 27.31
	Weisse, 0.421 - -	42.7	55.0	8.0	16 55.23	1 48.432	0 30.66	46.104	Flora — Weisse, 0.421, Δ α Δ δ
	Flora - - - - -	18.4	30.7	43.5	19 30.87	3 34.519			h. m. s. m. s. ′ ″
	Weisse, 0.421 - -		2.0	14.0	20 1.77	1 48.530	0 30.90	46.069	Sid. T. 23 20 36.80 — 0 30.90 —11 49.34
	Flora - - - - -	17.4	30.2	42.2	22 29.93	3 34.668			Δρ .01 + .47
	Weisse, 0.421 - -		1.2	13.2	23 0.93	1 48.411	0 31.00	46.337	p — .14 + 7.06
	Flora - - - - -	29.3	42.1	54.0	26 41.80	2 34.620			
	Weisse, 0.421 - -	0.3	13.0	25.5	27 12.93	1 48.527	0 31.13	46.173	
	Flora - - - - -	44.7	57.2	10.2	30 57.37	3 34.812			
	Weisse, 0.421 - -	16.0	29.1	41.5	31 28.89	1 48.568	0 31.52	46.324	
	Flora - - - - -	27.1	40.2	52.0	34 39.77	3 34.770			
	Weisse, 0.421 - -	58.7	11.2		35 11.07	1 48.497	0 31.30	46.358	
	Flora - - - - -	23.2	36.3	48.5	36 36.00	3 34.862			
	Weisse, 0.421 - -	55.1	7.4	19.2	37 7.23	1 48.580	— 0 31.23	— 46.362	
Oct. 1	Weisse, 0.239 - -	2.5	15.2	27.5	22 6 15.07	3 40.811	+ 2 10.33	+ 65.870	
	Flora - - - - -	13.0	25.2	38.0	8 25.40	1 35.021			
	Weisse, 0.239 - -	52.3	5.1	17.1	10 4.83	3 40.730	2 10.14	65 770	
	Flora - - - - -	2.7	15.1	27.1	12 14.97	1 35.040			
	Weisse, 0.239 - -	25.8	37.8	50.5	22 13 38.03	3 40.720	+ 2 10.50	+ 65.620	
	Flora - - - - -	36.1	48.5	1.0	15 48.53	1 35.180			(Continued.)

FLORA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	m. s.
t. 1	Weisse, 0.239 - -	59.0		24.1	22 17 11.56	3 40.762	+ 2 9.62	+ 65.527	Corr. Chron. — 0 51.00
	Flora - - - - -	8.5	21.0	34.0	19 21.17	1 35.315			
	Weisse, 0.239 - -	39.0	51.2	4.1	32 51.43	3 40.788	2 9.24	65.158	α h. m. s. δ ° ′ ″
	Flora - - - - -	48.2	0.3	13.5	35 0.67	1 35.710			Weisse, 0.239, 0 13 46.78 —11 30 42.84
	Weisse, 0.239 - -	4.2	17.1	29.7	36 17.00	3 40.782	2 9.80	65.112	Flora—Weisse, 0.239, Δα Δδ
	Flora - - - - -	14.1	27.1	39.2	38 26.80	1 35.750			h. m. s. m. s. ′ ″
	Weisse, 0.239 - -	26.0	38.4	50.7	39 38.37	3 40.826	2 8.68	65.115	Sid. T. 22 31 11.89 + 2 9.51 +16 43.87
	Flora - - - - -	34.7	47.0	59.3	41 47.00	1 35.791			Δρ — .02 .78
									p — .22 + 7.13
	Weisse, 0.239 - -	32.0	44.8	57.5	43 44.77	3 40.784	2 9.23	64.958	
	Flora - - - - -	41.2	54.0	6.8	45 54.00	1 35.911			
	Weisse, 0.239 - -	24.1	35.8	49.1	47 36.33	3 40.897	2 8.90	65.094	
	Flora - - - - -	32.7	45.7	57.3	49 45.23	1 35.883			
	Weisse, 0.239 - -	24.0	36.1	49.0	51 36.37	3 40.914	+ 2 8.73	+ 64.925	
	Flora - - - - -	32.5	45.1	57.7	53 45.10	1 36.069			
t. 3	Weisse, 0.239 - -	57.0	10.2	22.0	21 56 9.73	2 46.210	+ 0 27.67	+ 21.515	m. s.
	Flora - - - - -	25.2	37.0	50.0	56 37.40	1 54.862			Corr. Chron. — 0 41.05
	Weisse, 0.239 - -	2.5	15.0	27.3	22 2 14.93	2 46.232	0 27.75	21.398	α h. m. s. δ ° ′ ″
	Flora - - - - -		42.7	55.1	2 42.68	1 55.001			Weisse, 0.239, 0 13 46.78 —11 30 42.96
	Weisse, 0.239 - -	34.2	47.0	59.0	15 46.73	2 46.609	0 26.97	21.324	
	Flora - - - - -	1.4	13.5	26.2	16 13.70	1 55.452			Flora—Weisse, 0.239, Δα Δδ
	Weisse, 0.239 - -	6.2	18.5	31.5	18 18.73	2 46.472	0 26.60	21.087	h. m. s. m. s. ′ ″
	Flora - - - - -	33.0	45.2	57.8	18 45.33	1 55.552			Sid. T. 22 12 36.49 + 0 27.03 + 5 24.91
									Δρ — .01 .27
	Weisse, 0.239 - -	52.5	5.2	17.0	21 4.97	2 46.452	0 26.70	20.997	p — .25 + 6.87
	Flora - - - - -	19.0	31.7	44.3	21 31.67	1 55.622			
	Weisse, 0.239 - -	15.7	28.2	40.0	23 27.97	2 46.019	+ 0 26.50	+ 20.519	
	Flora - - - - -	42.2	54.2	7.0	23 54.47	1 55.667			
t. 4	Flora - - - - -	35.0	48.1	1.0	21 32 48.03	2 43.745			
	Weisse, 0.239 - -	58.0	10.3	23.2	33 10.50	2 44.889	— 0 22.47	+ 1.144	
	Flora - - - - -	44.3	57.1	9.0	34 56.80	2 43.677			
	Weisse, 0.239 - -	6.5	19.0	31.5	35 19.00	2 44.910	0 22.20	1.233	m. s.
	Flora - - - - -	16.7	29.0	41.7	39 29.13	2 43.723			Corr. Chron. — 0 38.21
	Weisse, 0.239 - -	39.0	51.8	4.2	39 51.67	2 44.962	0 22.54	1.239	
	Flora - - - - -	53.2	5.6	18.0	42 5.60	2 43.911			α h. m. s. δ ° ′ ″
	Weisse, 0.239 - -	15.0	28.2	40.7	42 27.97	2 44.952	0 22.37	1.041	Weisse, 0.239, 0 13 46.78 —11 30 42.96
	Flora - - - - -	53.1	5.7	18.0	44 5.60	2 43.912			Flora—Weisse, 0.239, Δα Δδ
	Weisse, 0.239 - -	16.5	28.2	40.7	44 28.47	2 45.000	0 22.80	1.088	h. m. s. m. s. ′ ″
	Flora - - - - -	49.3	1.7	14.7	46 1.90	2 43.920			Sid. T. 21 42 45.06 — 0 22.62 + 0 17.03
	Weisse, 0.239 - -	12.0	24.6	36.8	46 24.47	2 45.057	0 22.57	1.137	Δρ .00 .02
									p — .31 + 6.95
	Flora - - - - -	5.7	18.2	31.0	48 18.30	2 44.050			
	Weisse, 0.239 - -	28.5		53.7	48 41.10	2 45.090	0 22.80	1.040	
	Flora - - - - -	57.0	9.7	23.0	50 9.90	2 44.042			
	Weisse, 0.239 - -	20.0	33.2	45.5	50 32.90	2 45.111	0 23.00	1.068	
	Flora - - - - -	21.5	34.0	47.0	52 34.17	2 44.132			
	Weisse, 0.239 - -	44.0	57.2	9.7	52 56.97	2 45.119	— 0 22.80	+ 0.987	
6	Weisse, 0.189 - -	45.1	57.2	10.2	22 6 57.50	2 40.721	+ 0 33.80	+ 25.927	
	Flora - - - - -		31.0	44.0	7 31.30	1 44.961			(Continued.)

FLORA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs	m. s.	revs.	
Oct. 6	Weisse, 0.189 - -	30.3	43.2	55.0	22 8 42.83	2 40.650	+ 0 34.04	+ 25.696	
	Flora - - - -	4.2	16.9	29.5	9 16.87	1 45.121			
	Weisse, 0.189 - -	7.5	19.7	32.5	10 19.90	2 40.801	0 33.73	25.959	
	Flora - - - -	41.4	53.5	6.0	10 53.63	1 45.009			Corr. Chron. m. s. — 0 28.66
	Weisse, 0.189 - -	2.3	14.7	27.1	12 14.70	2 40.732	0 33.57	25.710	
	Flora - - - -	35.7	47.9	1.2	12 48.27	1 45.189			α δ
	Weisse, 0.189 - -	57.5	9.7	22.0	14 9.73	2 40.880	0 33.47	25.938	h. m. s. ° ′ ″ Weisse, 0.189, 0 11 11.85 —11 46 37.55
	Flora - - - -	30.9	43.0	55.7	14 43.20	1 45.109			
	Weisse, 0.189 - -	40.7	53.0	5.7	15 53.13	2 40.940	0 33.64	25.736	Flora—Weisse, 0.189, Δα Δδ
	Flora - - - -	14.1	26.7	39.5	16 26.77	1 45.371			h. m. s. m. s. ′ ″ Sid. T. 22 19 21.62 + 0 33.30 + 6 34.87
	Weisse, 0.189 - -	24.2	36.6	49.3	17 36.70	2 40.965	0 33.17	25.732	Δρ — .01 .32
	Flora - - - -	57.2	9.7	22.7	18 9.87	1 45.400			p — .23 + 7.07
	Weisse, 0.189 - -	19.0	31.0	43.7	22 31.23	2 40.989	0 33.15	25.606	
	Flora - - - -		4	17.0	23 4.38	1 45.550			
	Weisse, 0.189 - -	11.5	24.0	37.1	24 24.20	2 41.035	0 32.97	25.502	
	Flora - - - -	44.5	57.0	10.0	24 57.17	1 45.700			
	Weisse, 0.189 - -	7.2	19.7	32.1	26 19.67	2 41.068	0 32.73	25.575	
	Flora - - - -	39.7	52.5	5.0	26 52.40	1 45.660			
	Weisse, 0.189 - -	51.7	4.0	17.0	28 4.23	2 41.061	0 32.84	25.563	
	Flora - - - -	25.1	37.0	49.1	28 37.07	1 45.665			
	Weisse, 0.189 - -	34.0	47.0	0.5	30 47.17	2 41.222	0 32.80	25.490	
	Flora - - - -		30.4	42.7	31 39.97	1 45.899			
	Weisse, 0.189 - -	7.2	19.7	32.5	32 19.80	2 41.271	+ 0 32.97	+ 25.556	
	Flora - - - -	40.3	52.7	5.3	32 52.77	1 45.882			
Oct. 7	Flora - - - -	32.5	44.8	57.5	21 10 44.93	2 26.740			
	Weisse, 0.189 - -		0.0	12.5	11 0.03	2 35.406	— 0 15.10	+ 8.666	
	Flora - - - -	49.6	2.0	14.5	13 2.03	2 26.768			
	Weisse, 0.189 - -	5.0	17.2	29.7	13 17.30	2 35.507	0 15.27	8.739	
	Flora - - - -	58.2	10.5	23.2	16 10.63	2 26.915			Corr. Chron. m. s. — 0 24.43
	Weisse, 0.189 - -	13.5	26.0	38.3	16 25.53	2 35.597	0 14.90	8.682	
	Flora - - - -	23.6	36.5	49.0	18 36.37	2 27.002			α δ h. m. s. ° ′ ″
	Weisse, 0.189 - -	39.2	51.3	3.7	18 51.40	2 35.710	0 15.03	8.708	Weisse, 0.189, 0 11 11.85 —11 46 37.62
	Flora - - - -	38.2	50.3	2.5	20 50.33	2 27.078			Flora—Weisse, 0.189, Δα Δδ
	Weisse, 0.189 - -	53.2	6.0	18.5	21 5.90	2 35.701	0 15.57	8.623	h. m. s. m. s. ′ ″
	Flora - - - -	54.2	7.2	19.5	23 6.97	2 27.041			Sid. T. 21 23 13.15 — 0 15.47 + 2 11.69
	Weisse, 0.189 - -	9.3	22.0	34.2	23 21.83	2 35.716	0 14.86	8.675	Δρ .00 .13
	Flora - - - -	51.4	4.0	16.3	26 3.90	2 27.205			p — .32 + 6.89
	Weisse, 0.189 - -	7.0	19.2	32.5	26 19.57	2 35.630	0 15.67	8.425	
	Flora - - - -	43.2	55.0	8.0	28 55.40	2 27.290			
	Weisse, 0.189 - -	59.0	11.5	24.2	29 11.57	2 35.750	0 16.17	8.460	
	Flora - - - -	27.0	39.0	51.2	31 39.07	2 27.346			
	Weisse, 0.189 - -	42.0	54.5	7.1	31 54.53	2 35.838	0 15.46	8.492	
	Flora - - - -	18.7	31.0	43.7	34 31.13	2 27.482			
	Weisse, 0.189 - -	34.4	47.0	59.7	34 47.03	2 35.910	0 15.90	8.428	
	Flora - - - -	40.0	52.7	5.2	37 52.63	2 27.570			
	Weisse, 0.189 - -	56.0	9.0	21.5	38 8.83	2 35.915	— 0 16.20	+ 8.345	

FLORA.

...TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.	RESULTS.
...50.		s.	s.	s.	h. m. s.	w.	rev.	m. s.	m. s.	
8	Flora - - - - - -	56.0	8.0	21.0	21 15 8.33	2	44.680			
	Weisse, 0.189 - -	58.0	11.0	23.5	16 10.83	2	37.392	— 1 2.50	— 7.288	Corr. Chron. s. — 0 19.94
	Flora - - - - - -	12.7	25.2	38.3	18 25.40	2	44.808			
	Weisse, 0.189 - -	15.3	28.5	40.7	19 28.17	2	37.389	1 2.77	7.419	α h. m. s. δ ° ′ ″
	Flora - - - - - -	29.3	41.5	54.1	20 41.63	2	44.818			Weisse, 0.189, 0 11 11.85 —11 46 37.69
	Weisse, 0.189 - -	31.7	44.4	57.0	21 44.37	2	37.426	1 2.74	7.392	Flora — Weisse, 0.189, Δ α Δ δ
	Flora - - - - - -	39.4	51.3	4.2	22 51.63	2	44.861			h. m. s. m. s. ′ ″
	Weisse, 0.189 - -	42.2	54.4	7.2	23 54.60	2	37.545	1 2.97	7.316	Sid. T. 26 26 14.02 — 1 3.11 — 1 54.01
	Flora - - - - - -	46.3		11.9	24 59.10	2	45.090			Δρ .00 — .12
	Weisse, 0.189 - -	49.7	2.3	14.7	26 2.23	2	37.598	1 3.13	7.492	p — .32 + 6.78
	Flora - - - - - -	46.5	59.2	12.3	27 59.33	2	45.080			
	Weisse, 0.189 - -	50.3	2.5	15.3	29 2.70	2	37.562	1 3.37	7.518	
	Flora - - - - - -	2.5	15.3	27.9	30 15.23	2	45.090			
	Weisse, 0.189 - -	6.0	18.3	31.3	31 18.53	2	37.778	1 3.30	7.312	
	Flora - - - - - -	30.3	43.6	56.1	32 43.33	2	45.221			
	Weisse, 0.189 - -	34.1	46.3	59.5	33 46.63	2	37.660	1 3.30	7.561	
	Flora - - - - - -	54.8	7.9	20.3	35 7.67	2	45.190			
	Weisse, 0.189 - -	58.5	11.3	23.6	36 11.13	2	37.690	1 3.46	7.500	
	Flora - - - - - -	15.3	28.2	40.3	37 27.93	2	45.272			
	Weisse, 0.189 - -	19.1	31.3	44.0	38 31.47	2	37.886	— 1 3.54	— 7.386	
... 9	Flora - - - - - -	17.1	29.6	42.3	21 37 29.67	2	56.847			
	Weisse, 0.189 - -	6.7	19.5	32.0	39 19.40	2	34.642	— 1 49.73	— 22.205	Corr. Chron. s. — 15.45
	Flora - - - - - -	51.4	4.2	16.2	41 3.93	3	27.010			
	Weisse, 0.189 - -	11.5	54.2	6.5	42 54.07	2	34.670	1 50.14	22.252	α h. m. s. δ ° ′ ″
	Flora - - - - - -	45.5	57.0	10.6	44 57.70	3	27.058			
	Weisse, 0.189 - -	36.2	48.7	1.2	46 48.70	2	34.645	1 51.00	22.325	Weisse, 0.189, 0 11 11.85 —11 46 37.76
	Flora - - - - - -	29.1	41.5	54.5	47 41.70	3	27.102			Flora — Weisse, 0.189, Δ α Δ δ
	Weisse, 0.189 - -	19.7	32.0	44.1	49 31.93	2	34.700	1 50.23	22.324	h. m. s. m. s. ′ ″ Sid. T. 21 45 52.88 — 1 50.45 — 5 43.22
	Flora - - - - - -	6.2	19.0	31.7	51 18.97	3	27.225			Δρ + .01 — .30
	Weisse, 0.189 - -	57.2	9.7	22.0	53 9.63	2	34.687	1 50.66	22.450	p — .29 + 6.91
	Flora - - - - - -	5.0	18.2	30.9	54 18.03	3	27.321			
	Weisse, 0.189 - -	56.0	9.2	21.7	56 8.97	2	34.800	— 1 50.94	— 22.433	
...t. 15	Flora - - - - - -	1.5		27.6	8 7 14.55	2	23.801			
	Weisse, 0.102 - -	17.7	29.5	42.1	8 29.79	2	23.761	— 1 15.24	— 0.040	
	Flora - - - - - -	16.0	29.2	41.3	9 28.83	2	23.836			
	Weisse, 0.102 - -	31.5	43.7	56.2	10 43.80	2	23.810	1 14.97	0.026	
	Flora - - - - - -	31.7	44.2	56.6	11 44.17	2	23.928			
	Weisse, 0.102 - -	46.1	58.6	10.9	12 58.53	2	23.819	1 14.36	— 0.109	
	Flora - - - - - -	56.8	9.3	22.7	14 9.60	2	23.911			
	Weisse, 0.102 - -	12.8	24.2	36.9	15 24.37	2	23.920	1 14.77	+ 0.009	
	Flora - - - - - -	3.2	15.2	28.3	18 15.57	2	24.007			
	Weisse, 0.102 - -	17.5	30.2	42.6	19 30.10	2	24.021	1 14.53	+ 0.014	
	Flora - - - - - -	13.2	25.3	38.1	20 25.53	2	24.093			
	Weisse, 0.102 - -	27.5	40.3	52.7	21 40.17	2	24.026	1 14.64	— 0.067	
	Flora - - - - - -	33.2	46.1	58.6	22 45.97	2	24.102			
	Weisse, 0.102 - -	49.0	1.4	14.2	8 24 1.53	2	24.058	— 1 15.56	— 0.044	(Continued.)

FLORA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Oct. 15	Flora	41.4	54.3	6.8	8 25 54.17	2 24.218			s.
	Weisse, 0.102 . .	57.0	9.4	21.8	27 9.40	2 24.152	— 1 15.23	— 0.066	Corr. Chron. + 38.56
	Flora	52.3	4.5	16.7	28 4.50	2 24.238			α δ
	Weisse, 0.102 . .	7.2	19.6	31.5	29 19.43	2 24.200	1 14.93	0.038	h. m. s. ° ′ ″
	Flora	0.4	12.2	25.2	30 12.60	2 24.257			Weisse, 0.102, 0 6 23.08 —12 8 3.07
	Weisse, 0.102 . .	15.2	27.7	40.5	31 27.80	2 24.092	1 15.20	0.165	Flora — Weisse, 0.102, Δα Δδ
	Flora	22.6	35.3	48.1	33 35.33	2 24.421			M. T.
	Weisse, 0.102 . .	39.3	51.7	3.7	34 51.57	2 24.252	1 16.24	0.169	h. m. s. m. s. ′ ″
	Flora	32.0	44.6	57.7	35 44.77	2 24.459			8 24 37.27 — 1 15.23 — 0 1.02
	Weisse, 0.102 . .	48.4	0.4	13.6	37 0.80	2 24.279	1 16.03	0.180	Δt .20
	Flora	46.3	58.5	10.7	37 58.50	2 24.440			Δρ .00 — .00
	Weisse, 0.102 . .	1.7	13.8	26.9	39 14.13	2 24.291	1 15.63	0.149	p — .25 + 6.83
	Flora	55.3	7.5	20.6	40 7.80	2 24.492			
	Weisse, 0.102 . .	11.0	23.8	36.4	41 23.73	2 24.360	— 1 15.93	— 0.132	
Oct. 16	Flora	0.3	12.0	25.2	7 51 12.50	2 26.740			
	Weisse, 0.102 . .	51.5	4.5	17.1	53 4.36	2 21.161	— 1 51.86	— 5.579	m. s.
	Flora	16.6		41.2	54 28.90	2 26.831			Corr. Chron. + 0 37.34
	Weisse, 0.102 . .	7.5	20.3	33.2	56 20.33	2 21.346	1 51.43	5.485	α δ
	Flora	30.7	42.5	55.5	57 42.90	2 26.910			h. m. s. ° ′ ″
	Weisse, 0.102 . .	22.4	34.6	47.1	59 34.70	2 21.189	1 51.80	5.721	Weisse, 0.102, 0 6 23.07 —12 8 3.15
	Flora	30.0	42.9	55.6	8 1 42.83	2 26.950			Flora — Weisse, 0.102 Δα Δδ
	Weisse, 0.102 . .	21.6	34.0	47.2	3 34.26	2 21.329	1 51.43	5.621	M. T.
	Flora	44.2	57.2	9.0	5 56.80	2 27.068			h. m. s. m. s. ′ ″
	Weisse, 0.102 . .	36.3	43.0	1.3	7 48.53	2 21.330	1 51.73	5.738	8 14 3.54 — 1 51.23 — 1 27.37
	Flora	54.3	7.1	19.5	8 6.96	2 27.042			Δt .30
	Weisse, 0.102 . .	46.0	58.7	11.2	9 58.63	2 21.359	1 51.67	5.683	Δρ .08 + .08
	Flora	14.1	26.7	39.5	11 26.76	2 27.129			p — .26 + 6.81
	Weisse, 0.102 . .	5.8	18.2	31.2	13 18.40	2 21.438	1 51.64	5.691	
	Flora	49.7		14.7	15 2.20	2 27.192			
	Weisse, 0.102 . .	42.0	54.5	7.1	16 54.53	2 21.545	1 52.33	5.647	
	Flora	45.7		10.0	18 57.85	2 27.252			
	Weisse, 0.102 . .	37.6	49.7	2.7	20 50.00	2 21.570	1 52.15	5.682	
	Flora	13.6		38.7	22 26.15	2 27.333			
	Weisse, 0.102 . .	5.2	18.0	30.8	24 18.00	2 21.563	1 51.85	5.770	
	Flora	12.4	24.7	37.3	25 24.83	2 27.430			
	Weisse, 0.102 . .	4.5	16.8	29.7	27 17.00	2 21.716	1 52.17	5.714	
	Flora	7.7	19.5	32.5	28 19.90	2 27.449			
	Weisse, 0.102 . .	0.0	12.2	24.6	30 12.06	2 21.701	1 52.16	5.748	
	Flora	53.6	5.8	18.0	32 5.80	2 27.407			
	Weisse, 0.102 . .	45.7	58.3	10.9	33 58.30	2 21.742	1 52.50	5.665	
	Flora	0.2	12.0	25.0	35 12.40	2 27.580			
	Weisse, 0.102 . .	52.5	5.0	17.5	37 4.93	2 21.739	— 1 52.53	— 5.841	
Oct. 22	Weisse XXIII, 1242	53.0		18.2	9 51 6.60	1 41.811	+ 1 11.23	— 52.309	
	Flora	5.0	18.0	30.5	52 17.83	3 34.040			
	Weisse XXIII, 1242	5.2	17.4	30.5	9 58 17.70	1 41.820	+ 1 11.73	— 52.452	
	Flora	17.0	29.3	42.0	59 29.43	3 34.192			(Continued.)

FLORA.

.TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
.50.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
22	Weisse XXIII, 1242	44.2	57.3	9.7	10 0 57.06	1 41.852	+ 1 11.24	— 52.359
	Flora - - - -	55.2	8.5	21.2	2 8.30	3 34.131		
	Weisse XXIII, 1242	53.7	6.0	19.3	4 6.33	1 41.820	1 11.70	52.350
	Flora - - - -	5.1	18.2	30.8	5 18.03	3 34.090		
	Weisse XXIII, 1242	16.4	29.1	41.7	6 29.06	1 41.812	1 11.67	52.390
	Flora - - - -	28.1	40.6	53.5	7 40.73	3 34.122		
	Weisse XXIII, 1242	49.2	2.0	15.0	9 2.06	1 41.821	1 11.04	52.329
	Flora - - - -	0.4	13.2	25.7	10 13.10	3 34.070		
	Weisse XXIII, 1242	22.1	34.6	47.7	11 34.80	1 41.761	1 11.23	52.440
	Flora - - - -	33.2	46.2	58.7	12 46.03	3 34.121		
	Weisse XXIII, 1242	50.2	2.9	15.2	14 2.76	1 41.771	1 11.14	52.401
	Flora - - - -	1.5	14.0	26.2	15 13.90	3 34.092		
	Weisse XXIII, 1242	50.0	3.4	15.7	17 3.10	1 41.762	+ 1 11.30	— 52.416
	Flora - - - -	1.7	14.4	27.1	18 14.40	3 34.098		
29	Flora - - - - -	3.0	15.0	28.2	10 21 15.40	2 46.440		
	Weisse XXIII, 1242	2.2	15.0	27.0	22 14.73	2 46.255	— 0 59.33	— 0.185
	Flora - - - - -	10.2	23.1	35.4	26 22.90	2 46.389		
	Weisse XXIII, 1242	9.1	22.0	34.1	27 21.73	2 45.968	0 58.83	0.421
	Flora - - - - -	51.3	4.2	17.3	30 4.26	2 46.231		
	Weisse XXIII, 1242	51.3	4.1	16.5	31 3.96	2 46.062	0 59.70	— 0.169
	Flora - - - - -	10.9		36.0	33 23.45	2 46.061		
	Weisse XXIII, 1242	10.3		35.0	34 22.65	2 46.089	— 0 59.20	+ 0.028
31	Flora - - - - -	13.2	25.7	38.2	8 57 25.70	2 38.527		
	Weisse XXIII, 1227	6.0	18.1	31.0	58 18.36	2 40.860	— 0 52.66	+ 2.333
	Flora - - - - -	33.2	45.7	58.0	59 45.63	2 38.448		
	Weisse XXIII, 1227	25.2	38.3	50.5	9 0 38.00	2 40.860	0 52.37	2.412
	Flora - - - - -	29.1	41.3	54.2	1 41.53	2 38.440		
	Weisse XXIII, 1227	21.3	33.7	46.4	2 33.80	2 40.900	0 52.27	2.460
	Flora - - - - -	16.3	28.2	41.3	3 28.60	2 38.408		
	Weisse XXIII, 1227	8.6	21.4	33.7	4 21.23	2 40.862	0 52.63	2.454
	Flora - - - - -	14.6	27.2	39.3	5 27.03	2 38.400		
	Weisse XXIII, 1227	6.8	19.4	31.6	6 19.26	2 40.904	0 52.23	2.504
	Flora - - - - -	44.2	57.1	9.5	8 56.93	2 38.386		
	Weisse XXIII, 1227	36.8	49.2	1.9	9 49.30	2 40.895	0 52.37	2.509
	Flora - - - - -	42.6	55.4	8.1	10 55.36	2 38.388		
	Weisse XXIII, 1227	35.0	48.1	0.3	11 47.80	2 40.908	0 52.44	2.520
	Flora - - - - -	6.3	19.2	31.5	12 19.00	2 38.443		
	Weisse XXIII, 1227	58.5	11.2	23.7	13 11.13	2 40.911	0 52.13	2.468
	Flora - - - - -	41.2	54.1	6.8	14 54.03	2 38.410		
	Weisse XXIII, 1227	34.2	46.9	59.5	15 46.86	2 40.905	0 52.83	2.495
	Flora - - - - -	35.0	47.3	0.5	16 47.60	2 38.342		
	Weisse XXIII, 1227	27.6	40.3	52.7	17 40.20	2 40.881	0 52.60	2.539
	Flora - - - - -	25.7	38.3	50.7	18 38.23	2 38.314		
	Weisse XXIII, 1227	18.3	30.9	43.5	19 30.90	2 40.974	0 52.67	2.660
	Flora - - - - -	55.4	8.1	20.7	21 8.06	2 38.383		
	Weisse XXIII, 1227	48.0	0.7	13.4	22 0.70	2 40.962	— 0 52.67	+ 2.579

RESULTS.

Corr. Chron. + 0 m. 29.68 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XXIII, 1242,	0 0 10.85	—11 57 36.21

Flora—Weisse XXIII, 1242, M. T. (h. m. s.)	Δα (m. s.)	Δδ (′ ″)
10 7 32.10	+ 1 11.36	—13 25.11
Δt	+ .19	
Δρ	.00	— .56
p	+ .02	+ 6.83

Corr. Chron. + 0 m. 23.26 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XXIII, 1242,	0 0 10.84	—11 57 36.96

Flora—Weisse XXIII, 1242, M. T. (h. m. s.)	Δα (m. s.)	Δδ (′ ″)
10 28 9.76	— 0 59.26	— 0 2.86
Δt	— .16	
Δρ	.00	.00
p	+ .12	+ 6.54

Corr. Chron. + 0 m. 22.06 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XXIII, 1227,	23 59 45.31	—11 51 50.62

Flora—Weisse XXIII, 1227, M. T. (h. m. s.)	Δα (m. s.)	Δδ (′ ″)
9 11 57.18	— 0 52.55	+ 0 38.61
Δt	— .14	
Δρ	.00	+ .02
p	— .01	+ 6.50

(Continued.)

FLORA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Oct. 31	Flora - - - -	21. 4	34. 2	47. 1	9 23 34. 23	2 38. 326			
	Weisse XXIII, 1227	14. 2	27. 1	39. 5	24 26. 93	2 40. 940	— 0 52. 70	+ 2. 614	
	Flora - - - -	18. 3	31. 0	43. 2	25 30. 83	2 38. 312			
	Weisse XXIII, 1227	11. 3	24. 2		26 23. 93	2 40. 932	— 0 53. 10	+ 2. 622	
Nov. 1	Flora - - - -	3. 2	15. 7	28. 1	8 50 15. 66	2 37. 243			
	Weisse XXIII, 1227	1. 5	14. 3	27. 1	51 14. 30	3 24. 400	— 0 58. 64	+ 17. 069	m. s.
	Flora - - - -	24. 2	37. 3	49. 7	52 37. 06	2 37. 339			Corr. Chron. + 0 21. 56
	Weisse XXIII, 1227	23. 1	36. 0	49. 1	53 36. 06	3 24. 340	0 59. 00	16. 913	
	Flora - - - -	0. 4	13. 4	26. 2	55 13. 33	2 37. 255			α δ h. m. s. ° ′ ″
	Weisse XXIII, 1227	59. 2	12. 4	24. 8	56 12. 13	3 24. 350	0 58. 80	17. 007	Weisse XXIII, 1227, 23 59 45. 29 —11 51 50. 73
	Flora - - - -	4. 7		30. 0	58 17. 35	2 37. 172			Flora—Weisse XXIII, 1227, $\Delta\alpha$ $\Delta\delta$
	Weisse XXIII, 1227	3. 5	16. 1	29. 2	59 16. 26	3 24. 349	0 58. 91	17. 089	M. T.
	Flora - - - -	27. 2	39. 2	52. 6	9 0 39. 66	2 37. 245			h. m. s. m. s. ′ ″ 9 2 13. 39 — 0 58. 77 + 4 22. 64
	Weisse XXIII, 1227	25. 3	38. 6	51. 3	1 38. 40	3 24. 370	0 58. 74	17. 037	Δt — . 16
	Flora - - - -	51. 3	3. 8	16. 5	3 3. 86	2 37. 229			$\Delta\rho$. 00 — . 18
	Weisse XXIII, 1227	49. 7	2. 5	15. 7	4 2. 63	3 24. 353	0 58. 77	17. 036	p — . 03 + 6. 45
	Flora - - - -	13. 6	26. 4	39. 2	5 26. 40	2 37. 090			
	Weisse XXIII, 1227	12. 8	25. 3	38. 2	6 25. 43	3 24. 329	0 59. 03	17. 151	
	Flora - - - -	25. 2	37. 5	50. 2	8 37. 63	2 37. 089			
	Weisse XXIII, 1227	23. 4	36. 2	49. 2	9 36. 26	3 24. 378	0 58. 63	17. 201	
	Flora - - - -	53. 6	6. 5	19. 6	11 6. 57	2 37. 069			
	Weisse XXIII, 1227	52. 5	5. 2	17. 9	12 5. 20	3 34. 318	0 58. 63	17. 161	
	Flora - - - -	8. 3	21. 0	33. 0	13 20. 76	2 37. 164			
	Weisse XXIII, 1227	6. 2		32. 5	14 19. 35	3 24. 472	— 0 58. 59	+ 17. 220	
Nov. 2	Weisse XXIII, 1208	49. 0	2. 0	14. 1	9 50 1. 70	1 49. 960	+ 0 3. 50	— 26. 108	
	Flora - - - -	53. 0	5. 3	17. 3	50 5. 20	2 45. 901			m. s.
	Weisse XXIII, 1208	0. 1	13. 3	25. 0	51 12. 80	1 50. 049	0 3. 17	26. 118	Corr. Chron. + 0 20. 71
	Flora - - - -	3. 2	16. 0	28. 7	51 15. 97	2 46. 000			
	Weisse XXIII, 1208	44. 0	57. 0	9. 0	53 56. 66	1 50. 078	0 3. 34	26. 019	α δ h. m. s. ° ′ ″
	Flora - - - -	47. 3	0. 0	12. 7	54 0. 00	2 45. 930			Weisse XXIII, 1208, 23 58 39. 03 —11 36 34. 80
	Weisse XXIII, 1208	29. 7		54. 0	55 41. 85	1 50. 052	0 3. 35	26. 066	Flora—Weisse XXIII, 1208, $\Delta\alpha$ $\Delta\delta$
	Flora - - - -	33. 0	45. 1	57. 5	55 45. 20	2 45. 951			M. T.
	Weisse XXIII, 1208	6. 4		31. 5	57 18. 75	1 50. 021	0 3. 45	26. 021	h. m. s. m. s. ′ ″ 9 55 1. 54 + 0 3. 30 — 6 40. 77
	Flora - - - -	9. 6	22. 0	35. 0	57 22. 20	2 45. 875			Δt + . 01
	Weisse XXIII, 1208	20. 8	33. 1	46. 3	59 33. 40	1 50. 029	+ 0 3. 00	— 26. 122	$\Delta\rho$. 00 — . 28 p + . 09 + 6. 24
	Flora - - - -	24. 2	36. 0	49. 0	59 36. 40	2 45. 984			
Nov. 4	Weisse XXIII, 1208	59. 0	11. 2	24. 0	9 25 11. 40	2 41. 400	+ 0 1. 67	+ 8. 421	
	Flora - - - -	0. 5	13. 1	25. 6	25 13. 07	2 32. 979			
	Weisse XXIII, 1208	59. 0		24. 7	26 11. 85	2 41. 438	0 1. 50	8. 661	
	Flora - - - -	0. 7		26. 0	26 13. 35	2 32. 777			
	Weisse XXIII, 1208	19. 2	32. 0	44. 7	28 31. 97	2 41. 423	0 1. 63	8. 582	
	Flora - - - -	21. 3	33. 4	46. 1	28 33. 60	2 32. 841			
	Weisse XXIII, 1208	59. 0	11. 5	24. 0	30 11. 50	2 41. 350	0 1. 90	8. 705	
	Flora - - - -	2. 2	12. 7	25. 3	30 13. 40	2 32. 645			
	Weisse XXIII, 1208	32. 2	43. 7	57. 0	32 44. 30	2 41. 312	+ 0 1. 53	+ 8. 577	
	Flora - - - -	33. 6	45. 2	58. 7	32 45. 83	2 32. 735			(Continued.)

FLORA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
Nov. 4	Weisse XXIII, 1208	30. 2	42. 7	54. 9	9 34 42. 60	2	41. 405	+ 0 1. 36	+ 8. 856
	Flora	31. 6	44. 0	56. 2	34 43. 96	2	32. 549		
	Weisse XXIII, 1208	12. 7	25. 7	37. 8	36 25. 40	2	41. 269	0 1. 07	8. 558
	Flora	14. 2	26. 2	39. 0	36 26. 47	2	32. 711		
	Weisse XXIII, 1208	36. 5	49. 0	1. 5	39 49. 00	2	41. 359	0 1. 40	8. 902
	Flora	37. 8	50. 7	3. 2	39 50. 40	2	32. 457		
	Weisse XXIII, 1208	21. 7	34. 2	46. 2	40 34. 03	2	41. 215	0 1. 34	8. 653
	Flora	23. 0	35. 1	48. 0	40 35. 37	2	32. 562		
	Weisse XXIII, 1208	5. 0	18. 2	29. 0	42 17. 40	2	41. 138	+ 0 1. 63	+ 8. 781
	Flora	6. 2	19. 7	31. 2	42 19. 03	2	32. 357		
Nov. 9	Flora	16. 5	29. 0	41. 5	9 25 29. 00	2	46. 128		
	Weisse, 0. 13 . .	57. 1	9. 0	22. 0	28 9. 36	1	52. 995	— 2 40. 36	— 23. 300
	Flora	13. 0	25. 2	38. 2	30 25. 46	2	46. 000		
	Weisse, 0. 13 . .	54. 1	6. 5	19. 3	33 6. 63	1	52. 931	2 41. 17	23. 236
	Flora	44. 6	56. 8	9. 2	34 56. 86	2	45. 900		
	Weisse, 0. 13 . .	25. 1	37. 0	50. 2	37 37. 43	1	52. 955	2 40. 57	23. 112
	Flora	56. 8	8. 0	21. 0	39 8. 43	2	45. 840		
	Weisse, 0. 13 . .	37. 0	49. 7	2. 0	41 49. 23	1	52. 961	2 40. 80	23. 046
	Flora	29. 0	41. 3	54. 5	43 41. 60	2	45. 873		
	Weisse, 0. 13 . .	9. 7	22. 0	34. 3	46 22. 00	1	52. 976	2 40. 40	23. 064
	Flora	5. 7		31. 0	48 18. 35	2	45. 738		
	Weisse, 0. 13 . .	46. 5	59. 2	11. 4	50 59. 03	1	52. 923	2 40. 68	22. 982
	Flora	56. 0		21. 5	53 8. 75	2	45. 678		
	Weisse, 0. 13 . .	37. 2	49. 5	2. 1	55 49. 60	1	53. 011	2 40. 85	22. 834
	Flora	52. 8	5. 0	18. 0	57 5. 26	2	45. 695		
	Weisse, 0. 13 . .	33. 6	46. 2	59. 0	59 46. 26	1	53. 042	— 2 41. 00	— 22. 820
Nov. 13	Weisse XXIII, 1195	30. 3	43. 2	55. 7	8 39 43. 06	1	44. 869	+ 2 21. 54	— 55. 182
	Flora	52. 0	4. 6	17. 2	42 4. 60	3	39. 971		
	Weisse XXIII, 1195	28. 1	40. 7	54. 1	48 40. 96	1	44. 809	2 21. 60	54. 890
	Flora	49. 7	2. 6	15. 4	51 2. 56	3	39. 619		
	Weisse XXIII, 1195	21. 4	33. 9	46. 6	52 33. 96	1	44. 742	2 21. 77	54. 897
	Flora	43. 1	55. 7	8. 4	54 55. 73	3	39. 559		
	Weisse XXIII, 1195	32. 3	44. 5	57. 2	56 44. 66	1	44. 772	2 21. 97	54. 781
	Flora	54. 1	6. 4	19. 4	59 6. 63	3	39. 473		
	Weisse XXIII, 1195	19. 2	32. 3	44. 7	9 0 32. 06	1	44. 661	2 21. 54	54. 758
	Flora	41. 3	53. 7	6. 8	2 53. 60	3	39. 339		
	Weisse XXIII, 1195	51. 0	3. 5	16. 0	5 3. 50	1	44. 480	+ 2 22. 20	— 54. 670
	Flora	13. 1	25. 7	38. 3	7 25. 70	3	39. 070		
Nov. 14	Weisse XXIII, 1195	49. 5	2. 0	15. 0	8 18 2. 16	1	45. 336	+ 2 41. 50	— 27. 402
	Flora		44. 0	56. 0	20 43. 66	2	42. 571		
	Weisse XXIII, 1195	23. 2	35. 7	48. 5	22 35. 80	1	45. 360	2 42. 40	27. 290
	Flora	5. 6	18. 3	30. 7	25 18. 20	2	42. 483		
	Weisse XXIII, 1195	21. 8	34. 1	47. 0	27 34. 30	1	45. 250	2 42. 20	27. 315
	Flora	4. 1	16. 4	29. 0	30 16. 50	2	42. 398		
	Weisse XXIII, 1195	40. 9	53. 7	6. 2	8 34 53. 60	1	45. 398	+ 2 42. 10	— 27. 109
	Flora	23. 1	35. 7	48. 3	37 35. 70	2	42. 240		

RESULTS.

Corr. Chron.			s. + 18. 91
		α	δ
		h. m. s.	° ′ ″
Weisse XXIII, 1208,		23 58 39. 01	—11 36 34. 98
Flora—Weisse XXIII, 1208,		Δ α	Δ δ
M. T.			
h. m. s.		m. s.	′ ″
9 34 0. 36		+ 0 1. 50	+ 2 13. 25
	Δ t	. 00	
	Δ ρ	. 00	. 09
	p	+ . 06	+ 6. 29

Corr. Chron.			s. + 14. 53
		α	δ
		h. m. s.	° ′ ″
Weisse, 0. 13.		0 1 53. 08	—11 1 7. 78
Flora — Weisse, 0. 13,		Δ α	Δ δ
M. T.			
h. m. s.		m. s.	′ ″
9 41 46. 24		— 2 40. 73	— 5 54. 25
	Δ t	— . 44	
	Δ ρ	. 00	— . 25
	p	+ . 10	+ 6. 23

Corr. Chron.			s + 12. 45
		α	δ
		h. m. s.	° ′ ″
Weisse XXIII, 1195,		23 57 52. 04	—10 26 46. 99
Flora—Weisse XXIII, 1195,		Δ α	Δ δ
M. T.			
h m. s.		m. s.	′ ″
8 56 27. 25		+ 2 21. 77	—14 3. 21
	Δ t	. 39	
	Δ ρ	. 00	— . 57
	p	+ . 05	+ 5. 87

Corr. Chron.			s. + 12. 21
		α	δ
		h. m. s.	° ′ ″
Weisse XXIII, 1195,		23 57 52. 03	—10 26 47. 08
Flora—Weisse XXIII, 1195,		Δ α	Δ δ
M. T.			
h. m. s.		m. s.	′ ″
8 33 57. 07		+ 2 42. 46	— 6 57. 27
	Δ t	. 44	
	Δ ρ	. 00	— . 28
	p	+ . 02	+ 5. 83

(Continued.)

FLORA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet.—Star. Δα	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Nov. 14	Weisse XXIII, 1195	48.6	0.9	13.2	8 39 0.90	1 45.458	+ 2 42.10	− 26.923	
	Flora - - - -	30.3	43.0	55.7	41 43.00	2 42.214			
	Weisse XXIII, 1195	51 2	9.5	22.2	43 7.63	1 45.555	+ 2 44.47	− 26.852	
	Flora - - - -	39.7	51.9	4.7	46 52.10	2 42.240			
Nov. 18	Flora - - - -	14.2	26.5	39.3	8 26 26.67	2 46.605			s.
	Weisse, 0.41 - -	48.5	0.7	13.2	27 0.80	3 34.310	− 0 34.13	+ 17.617	Corr. Chron. + 10.45
	Flora - - - -	0.2	13.0	25.3	28 12.83	2 46.399			α δ
	Weisse, 0.41 - -	34.0	47.0	59.2	28 46.73	3 34.312	0 33.90	17.825	h. m. s. ° ′ ″
	Flora - - - -	38.0	50.6	3.6	33 50.73	2 46.302			Weisse, 0.41, 0 2 51.75 −10 7 19.30
	Weisse, 0.41 - -	12.4	24.8	37.2	34 24.80	3 34.192	0 34.07	17.802	Flora — Weisse, 0.41, Δα Δδ
	Flora - - - -	28.2	40.6	53.0	35 40.60	2 46.191			M. T.
	Weisse, 0.41 - -	1.9	14.6	27.6	36 14.70	3 34.148	0 34.10	17.869	h. m. s. m. s. ′ ″
	Flora - - - -	16.4	29.0	41.5	38 28.96	2 46.092			8 39 20.73 − 0 33.83 + 4 35.96
	Weisse, 0.41 - -	49.3	2.6	15.4	39 2.46	3 34.155	0 33.50	17.975	Δt − .09
	Flora - - - -	31.5	44.4	57.0	40 44.30	2 46.078			Δρ .00 + .16
	Weisse, 0.41 - -	5.7	18.0	30.9	41 18.20	3 34.145	0 33.90	17.979	p + .05 + 5.59
	Flora - - - -	40.4	53.0	5.7	44 53.03	2 46.035			
	Weisse, 0.41 - -	14.2	27.0	39.6	44 26.93	3 34.166	0 33.90	18.043	
	Flora - - - -	32.9	45.2	58.0	45 45.36	2 46.030			
	Weisse, 0.41 - -	6.2	19.2	31.7	46 19.03	3 34.220	0 33.67	18.102	
	Flora - - - -	41.0	53.4	5.7	47 53.37	2 45.922			
	Weisse, 0.41 - -	14.2	26.9	39.7	48 26.96	3 34.160	0 33.59	18.150	
	Flora - - - -	34.2	47.2	59.6	49.47.00	2 45.884			
	Weisse, 0.41 - -	8.3	20.4	33.0	50 20.56	3 34.162	− 0 33.56	+ 18.190	
Nov. 21	Weisse, 0.28 - -	49.2	1.5	14.0	9 49 1.56	3 26.205	+ 1 30.67	+ 44.674	s. Corr. Chron. + 9.13
	Flora - - - -	19.7	32.0	45.0	50 32.23	1 41.611			α δ h. m. s. ° ′ ″
	Weisse, 0.28 - -	53.5	5.7	18.9	52 6.03	3 26.225	1 30.67	44.737	Weisse, 0.28, 0 2 25.48 − 9 48 21.82
	Flora - - - -	24.0	37.1	49.0	53 36.70	1 41.568			Flora — Weisse, 0.28, Δα Δδ
	Weisse, 0.28 - -	56.8	9.1	21.8	55 9.23	3 26.261	+ 1 30.34	+ 44.869	M. T. h. m. s. m. s. ′ ″
	Flora - - - -	27.2	39.5	52.0	56 39.57	1 41.472			9 53 45.30 + 1 30.56 +11 43.95 Δt .25 Δρ .01 .52 p + .19 + 5.32
Nov. 30	Flora - - - -	53 0	5.0	17.6	8 51 5.20	3 33.182			
	Weissc, 0.199 - -	32.0	44.1	57.3	52 44.46	2 30.951	− 1 39.26	− 32.143	
	Flora - - - -	57.7	9.5	22.2	54 9.80	3 33.090			s.
	Weisse, 0.199 - -	37.0	19.3	2.0	55 49.33	2 30.871	1 39.53	32.131	Corr. Chron. + 3.65
	Flora - - - -	16.0	28.0	40.7	57 28.23	3 33.115			α δ
	Weisse, 0.199 - -	55.2	7.3	20.0	59 7.50	2 30.910	1 39.27	32.117	h. m. s. ° ′ ″ Weisse, 0.199, 0 11 59.24 − 8 2 54.40
	Flora - - - -	44.0	56.3	9.2	9 0 56.50	3 33.009			
	Weisse, 0.199 - -	24.0	36.5	18.8	2 36.43	2 30.910	1 39.93	32.011	Flora — Weisse, 0.199, Δα Δδ
	Flora - - - -	26.3	38.2	51.0	4 38.50	3 32.940			M. T. h. m. s. m. s ′ ″
	Weisse, 0.199 - -	5.2	17.3	29.7	6 17.40	2 30.979	1 38.90	31.873	9 7 26.66 − 1 39.06 − 8 9.22
	Flora - - - -	31.3	43.5	56.0	7 43.60	3 32.845			Δt − .28 Δρ + .01 − .32
	Weisse, 0.199 - -	10.3	22.5	35.0	9 22.60	2 30.930	1 39.00	31.827	p + .14 + 4.89
	Flora - - - -	11.0	23.3	35.9	11 23.40	3 32.840			
	Weisse, 0.199 - -	49.8	2.5	14.7	9 13 2.33	2 31.010	− 1 38.93	− 31.742	(Continued.)

FLORA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
v. 30	Flora - - - - -	27.6	40.0	52.0	9 15 39.86	3	32.820		
	Weisse, 0.199 - -	6.2	18.4	30.9	17 18.50	2	31.060	— 1 38.64	— 31.672
	Flora - - - - -	32.0	44.3	57.1	18 44.46	3	32.698		
	Weisse, 0.199 - -	11.3	23.2	36.0	20 23.50	2	31.039	1 39.04	31.571
	Flora - - - - -	48.3		12.9	22 0.60	3	32.679		
	Weisse, 0.199 - -	26.2	39.0	51.0	23 38.73	2	31.295	— 1 38.13	— 31.296
c. 21	Flora - - - - -	11.0	23.6	36.0	8 0 23.53	3	39.758		
	Weisse, 0.601 - -	38.0	50.0	3.2	1 50.40	1	40.679	— 1 26.87	— 59.159
	Flora - - - - -	6.2	18.7	31.2	3 18.70	3	39.619		
	Weisse, 0.601 - -	32.7	45.0	57.8	4 45.16	1	40.798	1 26.46	58.901
	Flora - - - - -	44.6	57.0	9.6	5 57.06	3	39.491		
	Weisse, 0.601 - -	11.0	23.5	35.7	7 23.40	1	40.754	1 26.34	58.817
	Flora - - - - -	23.2	35.0	48.1	9 35.43	3	39.425		
	Weisse, 0.601 - -	49.0	1.5	14.0	11 1.50	1	41.718	1 26.07	58.787
	Flora - - - - -	57.0	9.0	21.5	12 9.16	3	39.410		
	Weisse, 0.601 - -	23.1	35.7	48.0	13 35.60	1	40.853	1 26.44	58.637
	Flora - - - - -	21.6	33.5	46.0	16 33.70	3	39.270		
	Weisse, 0.601 - -	47.4	59.7	12.3	17 59.80	1	40.749	1 26.10	58.601
	Flora - - - - -	17.4	29.8	42.0	19 29.73	3	39.161		
	Weisse, 0.601 - -	43.1	55.0	7.9	20 55.33	1	40.704	1 25.60	58.537
	Flora - - - - -	4.7	17.2	29.1	23 17.00	3	39.149		
	Weisse, 0.601 - -	30.3	42.7	55.0	24 42.66	1	40.860	1 25.66	58.369
	Flora - - - - -	39.1	50.0	4.0	25 51.03	3	39.151		
	Weisse, 0.601 - -	4.3	17.1	29.3	27 16.90	1	40.997	1 25.87	58.234
	Flora - - - - -	30.0	42.0	53.0	28 41.66	3	39.012		
	Weisse, 0.601 - -	55.6	7.8	20.3	30 7.90	1	40.969	1 26.24	58.123
	Flora - - - - -	39.0	51.7	4.0	32 51.56	3	38.840		
	Weisse, 0.601 - -	4.0	16.0	29.1	34 16.36	1	40.940	1 24.80	57.980
	Flora - - - - -	27.3	39.5	52.0	35 39.60	3	38.683		
	Weisse, 0.601 - -	52.7	5.1	17.9	8 37 5.23	1	40.909	— 1 25.63	— 57.854

RESULTS.

Corr. Chron. s. + 5.89

	α	δ
	h. m. s.	° ′ ″
Weisse, 0.601,	0 34 31.39	— 3 52 15.92

Flora — Weisse, 0.601,

M. T.		$\Delta\alpha$	$\Delta\delta$
h. m. s.		m. s.	′ ″
8 17 54.91		— 1 26.01	— 9 27.02
	Δt	— .23	
	$\Delta\rho$	.00	— .30
	p	+ .05	+ 3.95

COMET 1850, II.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Comet—Star. Δ α	Δ mic.	RESULTS.
		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
1850. Sept. 16	Comet 1850, II.	50.2	6.0	22.0	0 59 6.40	3 42.020			Corr. Chron. m. s. + 3 19.18
	B. Z., 452, 77			58.0	59 41.85	2 41.455	− 0 35.45	− 30.732	
	Comet 1850, II.	10.5	26.0		1 1 26.00	3 42.975			α h. m. s. δ ° ′ ″
	B. Z., 452, 77		1.0	26.2	2 1.00	2 41.720	0 35.00	31.422	B Z., 452,77, 7 45 48.77 +39 40 18.01
	Comet 1850, II.	25.2	41.0		3 41.00	3 43.519			
	B. Z., 452, 77		14.0	29.7	4 14.00	2 41.790	0 33.00	31.896	Comet — B. Z., 452,77, Δ α Δ δ; h. m. s. m. s. ′ ″
	Comet 1850, II.	46.2	2.0		5 2.00	3 44.569			Sid. T. 1 19 7.89 − 0 25.97 − 9 27.93
	B. Z., 452, 77		33.2	49.2	5 33.20	2 42.030	0 31.20	32.706	Δρ + .02 − .56; p − 1.39 + 11.45
	Comet 1850, II.	55.5	11.0		7 11.00	3 45.640			
	B. Z., 452, 77		41.5	57.2	7 41.50	2 42.132	0 30.50	33.675	
	Comet 1850, II.	26.0	42.0		11 42.00	3 47.532			
	B. Z., 452, 77			25.2	12 9.50	2 42.300	0 27.50	35.399	
	Comet 1850, II.	15.2	31.5		13 31.50	3 48.232			
	B. Z., 452, 77		58.2	15.2	13 58.20	2 42.450	0 26.70	35.949	
	Comet 1850, II.	29.5	46.0		18 46.00	2 47.879			
	B. Z., 452, 77		9.0	25.0	19 9.00	1 40.190	0 23.00	37.856	
	Comet 1850, II.	4.2	19.5		21 19.50	2 49.190			
	B. Z., 452, 77		42.0	59.2	21 42.00	1 40.225	0 22.50	39.132	
	Comet 1850, II.	24.2	39.2		23 39.20	2 50.300			
	B. Z., 452, 77		1.5	17.9	24 1.50	1 40.329	0 22.30	40.138	
	Comet 1850, II.	38.2	54.2		25 54.20	2 51.230			
	B. Z., 452, 77			31.0	26 15.30	1 40.440	0 21.10	40.957	
	Comet 1850, II.	38.0	53.5		27 53.50	2 51.945			
	B. Z., 452, 77			28.5	28 12.80	1 40.520	0 19.30	41.592	
	Comet 1850, II.	48.2	3.5		30 3.50	2 52.728			
	B. Z., 452, 77			38.0	30 22.30	1 40.709	0 18.80	42.186	
	Comet 1850, II.	50.3	6.2		32 6.20	2 54.122			
	B. Z., 452, 77			39.2	32 23.50	1 40.595	− 0 17.30	− 43.694	
Sept. 17	Comet 1850, II.	47.0	2.0		1 15 2.00	1 36.539			m. s.
	B. Z., 451, 60		37.0	52.0	15 37.00	3 34.800	− 0 35.00	+ 58.341	Corr. Chron. + 3 22.01
	Comet 1850, II.	57.2	12.0	28.0	17 12.00	1 37.420			
	B. Z., 451, 60			1.0	17 45.00	3 35.250	0 33.00	57.910	α h. m. s. δ ° ′ ″
	Comet 1850, II.	10.5	25.2		19 25.00	1 39.135			B Z., 451,60, 7 58 1.27 +36 40 0.20
	B. Z., 451, 60			10.0	19 54.30	3 35.387	0 29.30	56.332	
	Comet 1850, II.	45.2	59.7		22 59.70	1 40.510			Comet — B. Z., 451, 60, Δ α Δ δ; h. m. s. m. s. ′ ″
	B. Z., 451, 60		29.7	45.0	23 29.70	3 35.412	0 30.00	54.982	Sid. T. 1 25 3.83 − 0 30.35 +14 12.52
	Comet 1850, II.	58.5	14.0		25 14.00	1 42.180			Δρ .06 1.06; p − 1.36 + 12.02
	B. Z., 451, 60		42.0	57.0	25 42.00	3 35.815	6 28.00	53.715	
	Comet 1850, II.	2.2	18.2		30 18.20	1 44.470			
	B. Z., 451, 60		45.0	0.0	30 45.00	3 35.920	− 0 26.80	+ 51.530	
Oct. 4	Comet 1850, II.	32.0	45.0	57.5	5 33 44.83	2 43.705			
	Weisse X, 224	51.8	4.2	17.0	36 4.33	2 31.925	− 2 19.50	− 11.780	
	Weisse X, 229	14.0			36 26.44	2 39.945	2 41.61	3.760	
	Comet 1850, II.	3.5	16.5	28.5	39 16.17	2 45.610			
	Weisse X, 224	23.0	35.0	48.0	41 35.33	2 32.745	2 19.16	12.865	
	Weisse X, 229			10.0	5 41 57.33	2 40.511	+ 2 41.16	− 5.099	

(Continued.)

COMET 1850, II.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic. w.	Mic.	Comet—Star. Δα	Δ mic.
850.		s.	s	s.	h. m. s.	w.	revs.	m. s.	revs.
4	Comet 1850, II.	13.5	25.3	38.2	5 45 25.67	2	48.045		
	Weisse X, 224	31.0	43.0	57.0	47 43.67	2	33.100	— 2 18.00	— 14.945
	Weisse X, 229	54.0		18.0	48 6.00	2	41.327	2 40.33	6.718
	Comet 1850, II.	22.5	35.1	47.2	49 34.93	2	49.356		
	Weisse X, 224	39.2	51.9	4.5	51 51.87	2	33.532	2 16.94	15.824
	Weisse X, 229	2.0			52 14.67	2	41.555	2 39.74	7.801
	Comet 1850, II.	49.0	2.2	14.6	55 1.93	2	51.309		
	Weisse X, 224		17.5	29.5	57 17.03	2	33.880	2 15.10	17.429
	Weisse X, 229	27.0		52.0	57 39.50	2	42.028	2 37.57	9.281
	Comet 1850, II.	39.7	52.5	4.7	59 52.30	2	53.932		
	Weisse X, 224	54.2	7.0		6 2 6.80	2	34.025	2 14.50	19.907
	Weisse X, 229	17.0	29.0	41.0	2 29.00	2	42.173	2 36.70	11.759
	Comet 1850, II.	53.5	6.1	18.2	4 5.93	2	54.078		
	Weisse X, 224	6.0	19.2	31.0	6 18.73	2	34.430	2 12.80	19.648
	Weisse X, 229	28.5	41.2	54.1	6 41.27	2	42.408	— 2 35.34	— 11.670
t. 6	(° 26)	29.2	42.0	54.0	5 50 41.73	2	26.215	+ 0 16.10	— 31.466
	Comet 1850, II.	45.7	58.1	9.7	50 57.83	3	27.769		
	(° 26)	38.2	50.0	3.0	52 50.40	2	26.422	0 16.67	32.780
	Comet 1850, II.	54.2	7.5	19.5	53 7.07	3	29.290		
	(° 26)	25.2	37.2	49.6	54 37.33	2	26.571	0 17.90	33.101
	Comet 1850, II.	43.0	55.2	7.5	54 55.23	3	29.760		
	(° 26)	52.0	4.5	16.5	56 4.33	2	26.770	0 17.20	33.301
	Comet 1850, II.	9.5	21.5	33.8	56 21.53	3	30.159		
	(° 26)	46.2	58.4	10.7	58 58.43	2	27.070	0 18.27	33.828
	Comet 1850, II.	4.2	16.8	29.1	59 16.70	3	30.986		
	(° 26)	32.2	44.1	56.8	6 0 44.37	2	27.450	0 18.79	33.915
	Comet 1850, II.	50.8	3.0	15.7	1 3.16	3	31.453		
	(° 26)	24.2	36.3	48.9	2 36.47	2	27.349	0 18.76	34.633
	Comet 1850, II.	43.0	55.2	7.5	2 55.23	3	32.070		
	(° 26)	57.2	9.0	21.3	5 9.16	2	27.632	0 19.57	35.238
	Comet 1850, II.	16.7	28.5	41.0	5 28.73	3	32.958		
	(° 26)	12.4	25.0		7 24.85	2	27.734	0 20.05	35.869
	Comet 1850, II.	32.5	45.0	57.2	7 44.90	3	33.691		
	(° 26)	7.9	19.7		9 19.73	2	28.265	0 20.40	36.017
	Comet 1850, II.	28.2	40.2	52.0	9 40.13	3	34.370		
	(° 26)	1.4	14.0		11 14.10	2	28.187	0 20.60	36.826
	Comet 1850, II.	22.0	34.6	47.5	11 34.70	3	35.101		
	(° 26)	50.2	3.0		14 2.77	2	28.353	+ 0 21.90	— 37.144
	Comet 1850, II.	12.0	25.0	37.0	14 24.67	3	35.585		
t. 7	Comet 1850, II.	57.2	10.2	23.0	5 40 10.13	2	33.482		
	143, Lamont's Zones		49.1	1.0	40 48.58	3	36.975	— 0 38.45	+ 33.405
	Comet 1850, II.	46.3	58.7	11.5	44 58.83	2	35.600		
	143, Lamont's Zones		34.9	47.0	45 34.68	3	38.111	0 35.85	32.423
	Comet 1850, II.		28.5	41.5	49 28.65	2	37.900		
	143, Lamont's Zones		5.0	17.5	50 4.90	3	39.225	0 36.25	31.237
	Comet 1850, II.	19.2	31.5	44.0	53 31.57	2	39.365		
	143, Lamont's Zones		7.0	19.5	5 54 7.10	3	40.150	— 0 35.53	+ 30.697

RESULTS.

4.

		m. s.
Corr. Chron.		— 0 36.98

	α	δ
	h. m. s.	° ′ ″
Weisse X, 224,	10 13 12.65	— 4 37 48.12
Weisse X, 229,	10 13 35.42	4 39 49.20

Comet—Weisse X, 224,		$\Delta\alpha$	$\Delta\delta$
	h. m. s.	m. s.	′ ″
Sid. T.	5 48 57.57	— 2 16.57	— 4 6.79
	$\Delta\rho$	+ .03	— .46
	p	— .61	+ 10.09

Comet — Weisse X, 229.			
	h. m. s.	m. s.	′ ″
Sid. T.	5 48 57.57	— 2 38.92	— 2 3.15
	$\Delta\rho$	.01	— .23
	p	— .61	+ 10.10

6.

		s.
Corr. Chron.		— 26.99

	α	δ
	h. m.	° ′
(° 26)	10 20,9	— 7 40,

Comet — (° 26)		$\Delta\alpha$	$\Delta\delta$
	h. m. s.	m. s.	′ ″
Sid. T.	6 1 50.50	+ 0 18.85	— 8 50.40
	$\Delta\rho$	+ .08	— 1.18
	p	— .69	+ 9.65

7.

		s.
Corr. Chron.		— 22.53

	α	δ
	h. m. s.	° ′ ″
143, Lamont's Zones,	10 26 51.14	— 9 7 14.93

Comet—143, Lamont's Zones,		$\Delta\alpha$	$\Delta\delta$
	h m. s.	m. s.	′ ″
Sid. T.	6 49 33.08	— 0 36.02	+ 8 4.34
	$\Delta\rho$	+ .03	.65
	p	— .61	+ 9.64

COMET 1850, II.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Comet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
Oct. 7	Comet 1850, II.	41.2	53.9	6.5	6 1 53.87	2	42.110		
	143, Lamont's Zones		28.0	40.4	2 27.87	3	41.220	— 0 34.00	+ 29.802
Oct. 8	Weisse X, 538	41.6	54.0	7.0	6 4 54.20	2	53.510	+ 1 12.70	+ 4.812
	Weisse X, 548			27.0	5 14.70	2	54.880	0 52.20	6.182
	Comet 1850, II.	54.2	7.0	19.5	6 6.90	2	48.698		
	Weisse X, 533	14.2	26.5	38.5	7 26.40	2	53.741	1 14.30	4.382
	Weisse X, 548			59.5	7 47.20	2	55.111	0 53.50	5.752
	Comet 1850, II.	28.5	40.4	53.2	8 40.70	2	49.359		
	Weisse X, 538	47.0	59.7	12.5	9 59.73	2	54.127	1 15.10	3.526
	Weisse X, 548	8.0	20.5	33.1	10 20.53	2	55.310	0 54.30	4.709
	Comet 1850, II.	2.0	15.0	27.5	11 14.83	2	50.601		
	Weisse X, 538	58.5	11.0	24.2	13 11.23	2	54.620	1 15.57	3.170
	Weisse X, 548			43.8	13 31.50	2	55.751	0 55.30	4.301
	Comet 1850, II.	14.2	26.7	39.5	14 26.80	2	51.450		
	Weisse X, 538	21.0	34.0	47.0	15 34.00	2	54.821	1 16.26	2.516
	Weisse X, 548	42.0		7.0	15 54.50	2	56.134	0 55.76	3.829
	Comet 1850, II.	38.0	50.3	2.5	16 50.26	2	52.305		
	Weisse X, 538	58.3	11.0	23.2	19 10.83	2	55.130	1 16.17	2.010
	Weisse X, 548	18.5		43.2	19 30.85	2	56.545	0 56.15	3.425
	Comet 1850, II.	14.2	27.3	39.5	20 27.00	2	53.120		
	Weisse X, 538	53.0	5.2	18.0	21 5.40	2	55.312	1 16.27	1.493
	Weisse X, 548	13.0		38.2	21 25.60	2	56.620	+ 0 56.07	+ 2.801
	Comet 1850, II.	9.0	22.0	34.0	22 21.67	2	53.819		
Oct. 9	(° 27)	58.3	11.0	23.5	6 16 10.93	2	35.475	+ 2 31.54	+ 1.405
	Comet 1850, II.	30.2	42.2	55.0	18 42.47	2	34.070		
	(° 27)	34.0	46.2	59.0	19 46.40	2	35.849	2 32.43	+ 0.649
	Comet 1850, II.	6.0	19.0	31.5	22 18.83	2	35.200		
	(° 27)	14.2	27.2	39.5	23 26.96	2	36.200	+ 2 32.15	— 0.160
	Comet 1850, II.		59.0	12.0	25 59.11	2	36.360		
Oct. 12	Weisse X, 879	13.0		39.0	17 14 26.00	2	20.510	+ 2 12.33	+ 14.387
	Comet 1850, II.	26.0	38.0	51.0	16 38.33	1	36.290		
	Weisse X, 879	32.0	45.0	57.5	17 17 44.83	2	20.550	+ 2 12.84	+ 13.062
	Comet 1850, II.	45.0	58.0	10.0	19 57.67	1	37.655		

RESULTS.

Corr. Chron. — 18.03 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse X, 538,	10 29 58.36	—10 16 1.57
Weisse X, 548,	10 30 18.56	10 16 20.03

Comet—Weisse X, 538,

	h. m. s.	Δ α (m. s.)	Δ δ (′ ″)
Sid. T.	6 16 23.33	+ 1 15.19	+ 0 48.09
	Δ ρ	— .01	.12
	p	— .64	+ 8.30

Comet — Weisse X, 548

	h. m. s.	m. s.	′ ″
Sid. T.	6 16 23.33	+ 0 54.75	+ 1 8.06
	Δ ρ	— .01	.17
	p	— .64	+ 8.30

Corr. Chron. — 13.73 s.

	α (h. m, s.)	δ (° ′ ″)
(° 27)	10 33 31.69	—11 25 1.56

Comet — (° 27)

	h. m. s.	Δα (m. s.)	Δ δ (′ ″)
Sid. T.	6 22 6.41	+ 2 32.04	+ 0 9.70
	Δ ρ	— .00	.03
	p	— .62	+ 8.98

Corr. Chron +44.09 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse X, 879,	10 48 3.37	—14 28 19.95

Comet—Weisse X, 879,

M. T. h m. s.	Δ α (m. s.)	Δ δ (′ ″)
17 18 52.09	+ 2 12.58	+ 3 30.93
Δ t	+ .36	
Δ ρ	— .04	.67
p	— .55	+ 8.37

VICTORIA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
1850.		s	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
Oct. 30	Victoria	12. 2	24. 1	37. 1	7 23 24. 47	2	36. 111		
	1636, Santini . .		12. 7	25. 3	24 12. 87	2	32. 528	— 0 48. 4[illegible]	— 3. 583
	Victoria	3. 1	16. 0	28. 3	25 15. 80	2	36. 129		
	1636, Santini . .	52. 5	4. 2	17. 3	26 4. 67	2	32. 501	0 48. 87	3. 628
	Victoria	31. 7	44. 2	56. 4	27 44. 10	2	36. 199		
	1636, Santini . .	20. 6	32. 5	45. 5	28 32. 87	2	32. 506	0 48. 77	3. 693
	Victoria	57. 2	9. 5	22. 4	30 9. 70	2	36. 178		
	1636, Santini . .	45. 2	58. 1	10. 2	30 57. 83	2	32. 491	0 48. 13	3. 687
	Victoria	57. 0	9. 0	21. 9	32 9. 30	2	36. 298		
	1636, Santini . .	45. 0	57. 9	9. 7	32 57. 53	2	32. 620	0 48. 23	3. 678
	Victoria	54. 2	6. 0	19. 0	34 6. 40	2	36. 335		
	1636, Santini . .	42. 3	54. 3	7. 0	34 54. 53	2	32. 568	0 48. 13	3. 767
	Victoria	5. 9		31. 5	39 18. 70	2	36. 406		
	1636, Santini . .	54. 3	7. 1	19. 1	40 6. 83	2	32. 555	0 48. 13	3. 851
	Victoria	20. 8	33. 2	45. 5	41 33. 17	2	36. 442		
	1636, Santini . .	8. 5	20. 8	33. 5	42 20. 93	2	32. 606	0 47. 76	3. 836
	Victoria	52. 4	4. 7	17. 1	44 4. 73	2	36. 556		
	1636, Santini . .	40. 5	53. 3	5. 5	44 53. 10	2	32. 581	0 48. 37	3. 975
	Victoria	54. 1	6. 3	19. 1	45 6 50	2	36. 588		
	1636, Santini . .	42. 3	54. 2	7. 2	45 54. 57	2	32. 642	0 48. 07	3. 946
	Victoria	45. 3	57. 5	10. 3	47 57. 70	2	36. 600		
	1636, Santini . .	33. 6	45. 8	58. 1	48 45. 83	2	32. 540	0 48. 13	4. 060
	Victoria	19. 7	32. 2	45. 1	50 32. 33	2	36. 596		
	1636, Santini . .	8. 4	20. 4	33. 2	51 20. 66	2	32. 551	0 48. 33	4. 045
	Victoria	30. 9	43. 1	56, 2	52 43. 40	2	36. 688		
	1636, Santini . .	19. 3	31. 7	44. 5	53 31. 83	2	32. 576	0 48. 43	4. 112
	Victoria	0. 7	12. 2	25. 0	55 12. 63	2	36. 729		
	1636, Santini . .	48. 0	1. 0	13. 7	56 0. 90	2	32. 593	— 0 48. 27	— 4. 136
Oct. 31	Victoria	11. 5		36. 3	10 9 23. 90	2	36. 546		
	1636, Santini . .		11. 0	23. 6	10 11. 00	2	29. 910	— 0 47. 10	— 6. 636
	Victoria	31. 2	43. 2	55. 7	11 43. 37	2	36. 550		
	1636, Santini . .	18. 2	29. 6	42. 5	12 30. 10	2	29. 999	0 46. 73	6. 551
	Victoria	57. 3	9. 5	21. 8	14 9. 53	2	36. 620		
	1636, Santini . .	44. 2	56. 7	9. 3	14 56. 73	2	29. 851	0 47. 20	6. 769
	Victoria	9. 3	21. 0	34. 2	16 21. 50	2	36. 665		
	1636, Santini . .		8. 0	20. 6	17 8. 20	2	29. 965	— 0 46. 70	— 6. 700
Nov. 1	Victoria	14. 8	27. 1	39. 5	7 20 27. 13	3	27. 751		
	1636, Santini . .			14. 0	21 0. 63	2	27. 801	— 0 33. 50	— 29. 862
	Victoria	13. 0	25. 5		22 35. 53	3	27. 822		
	1636, Santini . .	47. 3	59. 0	12. 0	22 59. 43	2	27. 847	0 33. 90	29. 887
	Victoria	33. 5	46. 1	58. 0	24 25. 86	3	27. 881		
	1636, Santini . .	7. 2	19. 4	32. 5	25 19. 70	2	27. 841	0 33. 84	29. 953
	Victoria	54. 2		19. 5	26 6. 85	3	27. 879		
	1636, Santini . .	27. 9	41. 0	53. 5	26 40. 80	2	27. 867	0 33. 95	29. 924
	Victoria	31. 2	43. 2	55. 7	28 43. 30	3	27. 921		
	1636, Santini . .	4. 9	17. 2	29. 8	7 29 17. 30	2	27. 775	— 0 34. 00	— 30. 058

RESULTS.

Corr. Chron. + 22. 17 s.

	α (h. m. s.)	δ (° ′ ″)
1636, Santini,	23 24 37. 65	+ 6 15 54. 46

Victoria — 1636, Santini,

M. T. (h. m. s.)		Δ α (m. s.)	Δ δ (′ ″)
7 39 36. 38		— 0 48. 29	— 0 59. 28
	Δ t	. 13	
	Δ ρ	. 00	+ . 02
	p	— . 01	+ 3. 59
10 13 16. 74		— 0 46. 92	— 1 42. 18
	Δ t	— . 13	
	Δ ρ	. 00	— . 04
	p	+ . 12	+ 3. 70

(Continued.)

VICTORIA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	m. s.
v. 1	Victoria - - - -	2.3	14.0	27.3	7 30 14.53	3	27.908		
	1636, Santini - - -		48.4	1.2	31 48.68	2	27.845	— 0 34.15	— 29.975
	Victoria - - - -	46.1	58.0	10.9	32 58.33	3	27.951		
	1636, Santini - - -	19.2	32.3	44.7	33 32.07	2	27.845	0 33.74	30.018
	Victoria - - - -	31.4	43.5	56.5	34 43.80	3	28.086		
	1636, Santini - - -		17.9	30.2	35 17.85	2	27.832	0 34.05	30.166
	Victoria - - - -	14.9	28.1	40.2	36 27.73	3	28.019		
	1636, Santini - - -	49.5	2.2	14.5	37 2.07	2	27.779	0 34.34	30.152
	Victoria - - - -	59.2	11.2	23.6	38 11.33	3	28.078		
	1636, Santini - - -	32.5	44.7	57.9	38 45.03	2	27.919	0 33.70	30.071
	Victoria - - - -	4.6		29.3	40 16.95	3	28.181		
	1636, Santini - - -	38.4	51.0	3.2	40 50.87	2	27.791	0 33.92	30.302
	Victoria - - - -	49.5	1.4	14.1	42 1.67	3	28.228		
	1636, Santini - - -	23.6	35.7	48.3	42 35.87	2	27.829	0 34.20	30.311
	Victoria - - - -	32.3	44.0		43 44.30	3	28.220		
	1636, Santini - - -	6.2	17.9	30.5	44 18.20	2	27.855	0 33.90	30.277
	Victoria - - - -	10.3	22.7		45 22.78	3	28.268		
	1636, Santini - - -	44.0	56.3	9.0	45 56.43	2	27.791	0 33.65	30.389
	Victoria - - - -	18.2	29.7	42.7	8 23 30.20	3	29.060		
	1636, Santini - - -		3.6	16.0	24 3.80	2	27.851	0 33.60	31.121
	Victoria - - - -	37.1	49.3	1.9	25 49.43	3	29.022		
	1636, Santini - - -	10.4	23.3	35.7	26 23.13	2	27.923	0 33.70	31.011
	Victoria - - - -	48.2	0.9	13.0	28 0.70	3	29.116		
	1636, Santini - - -	22.2	34.3	47.2	28 34.57	2	27.960	0 33.87	31.068
	Victoria - - - -	25.7	38.2	50.5	29 38.13	3	29.127		
	1636, Santini - - -	59.2	11.6	24.6	30 11.80	2	27.970	0 33.67	31.069
	Victoria - - - -	2.2	14.3	27.1	31 14.53	3	29.180		
	1636, Santini - - -	35.5	48.2	0.3	31 48.00	2	28.055	— 0 33.47	— 31.037
v. 2	Victoria - - - -	16.9	29.1	41.0	8 2 29.00	3	31.689		
	1636, Santini - - -	33.9	46.5	59.1	2 46.50	1	35.759	— 0 17.50	— 56.010
	Victoria - - - -	43.7	56.0	8.2	10 55.97	3	31.932		
	1636, Santini . - -		13.0	26.0	11 13.37	1	35.778	0 17.40	56.234
	Victoria - - - -	6.2	18.0		15 18.47	3	31.830		
	1636, Santini - - -	23.2	35.2	48.3	15 35.57	1	35.765	0 17.10	56.145
	Victoria - - - -	36.0	48.3	0.9	18 48.40	3	31.970		
	1636, Santini - - -	54.0		18.5	19 6.25	1	35.792	0 17.85	56.258
	Victoria - - - -	7.0	19.0		26 19.27	3	32.062		
	1636, Santini - - -	24.2	36.2	49.0	26 36.47	1	35.726	0 17.20	56.416
	Victoria - - - -	44.0	57.0	9.0	50 56.73	3	24.648		
	1636, Santini - - -	1.0		26.2	51 13.60	1	27.785	0 16.87	56.943
	Victoria - - - -	22.5	35.0		54 34.90	3	24.562		
	1636, Santini - - -	39.5	52.2	4.3	54 52.00	1	27.851	0 17.10	56.791
	Victoria - - - -	11.0	23.0		58 23.25	3	24.709		
	1636, Santini - - -	28.0	40.5	53.0	58 40.50	1	27.743	0 17.25	57.046
	Victoria - - - -	43.2	56.0		9 4 55.61	3	24.758		
	1636, Santini - - -	1.0	13.3	23.2	5 13.16	1	27.790	— 0 17.55	— 57.048

RESULTS.

v. 1:

Corr. Chron. + 21.65 s.

	α	δ
	h. m. s.	° ′ ″
1636, Santini,	23 24 37.63	+ 6 15 54.43

Victoria — 1636, Santini, M. T.		Δ α		Δ δ
h. m. s.		m. s.		′ ″
7 51 8.13		— 0 33.85		— 7 46.54
	Δt	.09		
	$\Delta \rho$	.00	—	.18
	p —	.14	+	3.67

v. 2:

Corr. Chron. + 21.56 s.

	α	δ
	h. m. s.	° ′ ″
1636, Santini,	23 24 37.62	+ 6 15 54.42

Victoria — 1636, Santini, M. T.		Δ α		Δ δ
h. m. s.		m. s.		′ ″
8 37 34.60		— 0 17.34		—14 29.11
	Δt —	.05		
	$\Delta \rho$	.00	--	.34
	p +	.09	+	3.65

VICTORIA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic. w.	Mic.	Planet—Star. Δα	Δ mic.	RESULTS.
		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
1850. Nov. 2	Victoria - - - -	17.2	28.9		9 9 28.85	3	24.798			
	1636, Santini - - -	34.0	46.0	59.0	9 46.40	1	27.765	− 0 17.55	− 57.113	
Nov. 4	Victoria	30.5	42.0	54.7	8 5 42.40	3	28.305			s.
	(° 29)		19.3	32.0	6 19.70	1	38.599	− 0 37.30	− 49.786	Corr. Chron. + 18.56
	Victoria	26.1	38.5	51.5	7 38.70	3	28.371			α δ
	(° 29)	3.5	16.2	28.2	8 15.97	1	38.725	0 37.27	49.726	h. m. s. ° ′ ″
	Victoria	57.4	9.7	22.0	10 9.70	3	28.405			(° 29) 23 25 35.24 + 5 33 40.46
	(° 29)	34.6	47.1	59.5	10 47.07	1	38.545	0 37.37	49.940	Victoria — (° 29) Δα Δδ
	Victoria	52.2	5.1	17.2	12 4.83	3	28.380			M. T. h. m. s. m. s. ′ ″
	(° 29)	29.7	42.2	54.2	12 42.03	1	38.559	0 37.20	49.901	8 29 0.48 − 0 36.98 −12 51.73
	Victoria	15.7	28.2	40.5	14 28.13	3	28.465			Δt − .10
	(° 29)	53.0	6.0	18.5	15 5.83	1	38.736	0 37.70	49.809	Δρ .00 − .30 p .00 + 3.61
	Victoria	17.9	30.4	42.0	17 30.10	3	28.538			
	(° 29)	55.0	7.0	19.5	18 7.17	1	38.660	0 37.07	49.958	
	Victoria	53.5	5.7	18.0	20 5.73	3	28.536			
	(° 29)	30.6	43.5	55.0	20 43.03	1	38.682	0 37.30	49.934	
	Victoria	47.8	1.0	13.5	22 0.77	3	28.770			
	(° 29)		38.2	50.0	22 37.62	1	38.681	0 36.85	50.169	
	Victoria	28.3	40.7	53.0	24 40.67	3	28.660			
	(° 29)	5.0	17.8	30.0	25 17.60	1	38.690	0 36.93	50.050	
	Victoria	48.1	0.3	13.0	47 0.47	3	29.615			
	(° 29)		37.0	49.5	48 37.07	1	39.220	0 36.60	50.475	
	Victoria	31.6	43.7	56.2	51 43.83	3	29.572			
	(° 29)	8.0	20.0	32.5	52 20.16	1	39.050	0 36.33	50.602	
	Victoria	4.7	16.5	29.2	54 16.80	3	29.772			
	(° 29)	41.0	53.7	5.2	54 53.30	1	39.095	0 36.50	50.757	
	Victoria	4.1	17.2	29.6	56 16.97	3	29.710			
	(° 29)	41.0	53.6	6.0	56 53.53	1	39.160	0 36.56	50.630	
	Victoria	55.6	7.5	20.3	58 7.80	3	29.638			
	(° 29)		44.2	57.0	58 44.50	1	39.149	− 0 36.70	− 50.569	
Nov. 5	Weisse XXIII, 458 .	27.2	39.2	52.0	7 29 39.47	2	42.250	+ 2 31.90	+ 28.169	s.
	Victoria		11.0	24.0	32 11.37	1	44.248			Corr. Chron. + 17.52
	Weisse XXIII, 458 .	54.2	6.8	19.2	39 6.73	2	42.280	2 31.94	27.942	α δ
	Victoria	26.0	38.0	52.0	41 38.67	1	44.505			h. m. s. ° ′ ″
	Weisse XXIII, 458 .	23.0	35.2	47.5	43 35.23	2	42.206	2 31.40	27.911	Weisse XXIII, 458, 23 22 46.46 + 5 36 17.88
	Victoria	54.2	6.7	19.0	46 6.63	1	44.462			Victoria—Weisse XXIII, 458, Δα Δδ
	Weisse XXIII, 458 .	18.2	30.6	43.1	52 30.63	2	42.248	2 31.40	27.873	M. T. h. m. s. m. s. ′ ″
	Victoria	49.5	1.9	14.7	55 2.03	1	44.642			7 52 26.89 + 2 31.66 + 7 7.60
	Weisse XXIII, 458 .	45.1	57.3	9.7	8 2 57.37	2	42.229	2 31.46	27.577	Δt + .41
	Victoria	16.5	29.0	41.0	5 28.83	1	44.819			Δρ .00 .17 p − .04 + 3.60
	Weisse XXIII, 458 .	44.2	57.1	9.2	9 56.83	2	42.278	+ 2 31.87	+ 27.480	
	Victoria	16.3	28.6	41.2	12 28.70	1	44.965			
Nov. 9	Weisse XXIII, 534 .	3.5	15.2	28.0	7 48 15.57	3	39.670	+ 0 44.15	+ 55.472	
	Victoria		59.5	12.0	48 59.72	1	44.278			
	Weisse XXIII, 602 .	59.2	11.0	23.0	51 11.07	3	51.181	− 2 11.35	+ 66.983	(Continued.)

VICTORIA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
350.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.
v. 9	Weisse XXIII, 534	4.3	16.2	28.9	7 53 16.47	3 39.621	+ 0 44.56	+ 55.202
	Victoria	48.9	1.0	13.2	54 1.03	1 44.499		
	Weisse XXIII, 602	59.5		24.1	56 11.80	3 51.169	— 2 10.77	66.750
	Weisse XXIII, 534	32.3	44.7	57.1	58 44.70	3 39.650	+ 0 44.40	55.172
	Victoria	17.0	29.0	41.3	59 29.10	1 44.558		
	Weisse XXIII, 602	28.2	40.2	52.7	8 1 40.37	3 51.151	— 2 11.27	66.673
	Weisse XXIII, 534	25.1	37.0	49.3	3 37.13	3 39.697	+ 0 45.60	55.287
	Victoria	10.2	23.0	35.0	4 22.73	1 44.490		
	Weisse XXIII, 602	21.2	33.5	46.1	6 33.60	3 51.059	— 2 10.87	66.649
	Weisse XXIII, 534	33.0	45.0	57.1	8 45.03	3 39.498	+ 0 44.94	55.050
	Victoria	18.0	29.9	42.0	9 29.97	1 44.528		
	Weisse XXIII, 602	28.7	40.0	52.9	11 40.53	3 51.048	— 2 10.56	66.600
	Weisse XXIII, 534	31.4	43.6	56.0	13 43.67	3 39.477	+ 0 44.80	55.017
	Victoria	16.0	28.4	41.0	14 28.47	1 44.540		
	Weisse XXIII, 602	27.2	39.2	51.4	16 39.27	3 50.970	— 2 10.80	66.510
	Weisse XXIII, 534	34.4		59.1	20 46.75	3 39.493	+ 0 45.02	54.927
	Victoria	19.3	32.0	44.0	21 31.77	1 44.646		
	Weisse XXIII, 602	29.5	41.9	51 2	23 40.87	3 51.012	— 2 9.10	66.446
	Weisse XXIII, 534	41.3		5.0	25 53.15	3 39.520	+ 0 44.95	54.837
	Victoria	26.0	38.0	50.3	26 38.10	1 44.763		
	Weisse XXIII, 602	35.3	48.0	0.9	28 48.07	3 50.886	— 2 9.97	66.203
	Weisse XXIII, 534	1.5	13.9	36.0	31 13.80	3 39.301	+ 0 45.05	54.632
	Victoria		59.0	11.0	31 58.85	1 44.749		
	Weisse XXIII, 602	57.3	9.1	21.5	34 9.30	3 50.908	— 2 10.45	66.239
	Weisse XXIII, 534	52.0	4.7	17.5	37 4.73	3 39.321	+ 0 45.64	54.739
	Victoria	38.1	50.7	2.3	37 50.37	1 44.662		
	Weisse XXIII, 602	48.7	0.9	13.0	40 0.87	3 50.760	— 2 10.50	66.178
	Weisse XXIII, 534	0.8	12.5	25.1	42 12.80	3 39.266	+ 0 45.30	54.736
	Victoria	46.0	58.0	10.3	42 58.10	1 44.610		
	Weisse XXIII, 602	56.0	8.3	21.0	45 8.43	3 50.692	— 2 10.33	66.162
	Weisse XXIII, 534	58.7	11.3	23.4	47 11.13	3 38.758	+ 0 45.74	54.647
	Victoria	44.1	57.2	9.3	47 56.87	1 44.191		
	Weisse XXIII, 602	54.3	6.2	18.6	50 6.37	3 50.312	— 2 9.50	+ 66.201
v. 10	Weisse XXIII, 534	44.1	56.0	9.0	7 10 56.37	2 48.959	+ 1 13.20	+ 37.867
	Victoria	57.3	9.4	22.0	12 9.57	1 41.259		
	Weisse XXIII, 602	39.7	52.0	4.3	13 52.00	3 30.210	— 1 42.43	49.031
	Weisse XXIII, 534	28.2	39.7	52.8	15 40.23	2 48.672	+ 1 13.70	37.729
	Victoria	41.7	54.1	6.0	16 53.93	1 41.110		
	Weisse XXIII, 602	23.2	36.2	48.9	18 35.80	3 30.252	— 1 41.87	49.222
	Weisse XXIII, 534	4.4	17.2	29.6	20 17.07	2 48.670	+ 1 13.76	37.714
	Victoria	18.5	31.2	43.0	21 30.83	1 41.123		
	Weisse XXIII, 602		12.0	25.0	23 12.23	3 30.292	— 1 41.40	49.249
	Weisse XXIII, 534	20.2	32.4	45.6	25 32.73	2 48.698	+ 1 13.30	37.719
	Victoria	34.1	34.0	58.3	26 46.13	1 41.146		
	Weisse XXIII, 602	15.0	27.0	40.0	28 27.33	3 30.231	— 1 41.20	49.165
	Weisse XXIII, 534	40.2	52.3	5.0	54 52.50	2 48.782	+ 1 14.77	37.174
	Victoria	55.2	7.3	19.3	56 7.27	1 41.775		
	Weisse XXIII, 602	36.0	48.2	1.3	57 48.50	3 30.366	— 1 41.23	48.671
	Weisse XXIII, 534	25.0	37.3	50.3	8 0 37.53	2 48.851	+ 1 14.87	37.249
	Victoria	40.0	52.5	4.7	1 52.40	1 41.769		
	Weisse XXIII, 602	21.0	33.2	46.6	3 33.40	3 30.300	— 1 41.00	+ 48.611

RESULTS.

Nov. 9:

Corr. Chron. + 14.56 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XXIII, 534,	23 26 16.09	+ 5 8 30.26
Weisse XXIII, 602,	23 29 12.34	5 5 33.60

Victoria—Weisse XXIII, 534,

M. T. h. m. s.		Δα m. s.	Δδ ′ ″
8 18 33.32		+ 0 45.01	+14 4.95
	Δt	.12	
	Δρ	.06	.33
	p	+ .01	+ 3.51

Victoria — Weisse XXIII, 602.

M. T. h. m. s.		m. s.	′ ″
8 18 33.32		— 2 10.46	+17 1.55
	Δt	— .36	
	Δρ	.00	.41
	p	+ .10	+ 3.52

Nov. 10:

Corr. Chron. + 14.31 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XXIII, 534,	23 26 16.09	+ 5 8 30.23
Weisse XXIII, 602,	23 29 12.34	5 5 33.59

Victoria—Weisse XXIII, 534,

M. T. h. m. s.		Δα m. s.	Δδ ′ ″
7 46 4.11		+ 1 14.20	+ 9 34.45
	Δt	+ .20	
	Δρ	.00	.23
	p	— .02	+ 3.40

Victoria—Weisse XXIII, 602.

M. T. h. m. s.		m. s.	′ ″
7 46 4.11		— 1 41.37	+12 30 29
	Δt	.28	
	Δρ	.00	.30
	p	— .02	+ 3.40

(Continued.)

VICTORIA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
Nov. 10	Weisse XXIII, 534	50. 2	2. 7	15. 2	8 6 2. 70	2	48. 699	+ 1 14. 57	+ 37. 048
	Victoria	5. 2	17. 0	29. 6	7 17. 27	1	41. 818		
	Weisse XXIII, 602	46. 0	58. 1	10. 2	8 58. 10	3	30. 279	− 1 41. 83	48. 541
	Weisse XXIII, 534	10. 2	22. 0	34. 0	11 22. 07	2	48. 595	+ 1 14. 93	36. 904
	Victoria	25. 0	37. 0	49. 0	12 37. 00	1	41. 858		
	Weisse XXIII, 602	5. 2	17. 2	29. 3	14 17. 23	3	30. 285	− 1 40. 23	48. 507
	Weisse XXIII, 534	47. 1	59. 0	11. 3	15 59. 13	2	48. 763	+ 1 14. 64	36. 980
	Victoria	1. 3	14. 0	26. 0	17 13. 77	1	41. 950		
	Weisse XXIII, 602	42. 0	55. 0	7. 3	18 54. 83	3	39. 212	− 1 41. 06	+ 48. 342
Nov. 13	Victoria	43. 0	55. 0	8. 0	7 15 55. 33	2	31. 462		
	Weisse XXIII, 602		59. 0	11. 2	15 58. 93	2	32. 652	− 0 3. 60	+ 1. 190
	Victoria	50. 0	2. 0		19 2. 13	2	31. 494		
	Weisse XXIII, 602	54. 2	6. 0	18. 5	19 6. 23	2	32. 675	0 4. 10	1. 181
	Victoria	21. 2	33. 0	46. 2	21 33. 47	2	31. 532		
	Weisse XXIII, 602	25. 0	37. 0	49. 5	21 37. 27	2	32. 590	0 3. 80	1. 058
	Victoria	17. 2		42. 0	23 29. 60	2	31. 580		
	Weisse XXIII, 602	20. 0	33. 0	45. 3	23 32. 83	2	32. 660	0 3. 23	1. 080
	Victoria	52. 3	4. 2	17. 2	26 4. 57	2	31. 639		
	Weisse XXIII, 602	56. 0	7. 9	20. 0	26 7. 97	2	32. 665	0 3. 40	1. 026
	Victoria	48. 0	59. 3	12. 0	27 59. 77	2	31. 678		
	Weisse XXIII, 602	51. 6	3. 2	15. 8	28 3. 53	2	32. 729	0 3. 76	1. 051
	Victoria	53. 0	5. 0	17. 4	32 5. 13	2	31. 709		
	Weisse XXIII, 602	56. 2	9. 1	21. 0	32 8. 77	2	32. 752	0 3. 64	1. 043
	Victoria	11. 5	24. 0	36. 5	34 24. 00	2	31. 700		
	Weisse XXIII, 602	15. 0	27. 5	39. 7	34 27. 40	2	32. 719	0 3. 40	1. 019
	Victoria	46. 0	58. 3	11. 0	36 58. 43	2	31. 709		
	Weisse XXIII, 602	49. 7	2. 0	14. 7	37 2. 13	2	32. 731	0 3. 70	1. 022
	Victoria	54. 0	7. 0	19. 0	39 6. 67	2	31. 820		
	Weisse XXIII, 602	57. 5	10. 5	22. 5	39 10. 17	2	32. 792	0 3. 50	0. 972
	Victoria	40. 2	53. 0	5. 0	41 52. 73	2	31. 709		
	Weisse XXIII, 602	43. 6	56. 3	8. 5	41 56. 13	2	32. 740	0 3. 40	1. 031
	Victoria	18. 5	30. 7	43. 0	43 30. 73	2	31. 971		
	Weisse XXIII, 602	22. 1	34. 0	46. 2	43 34. 10	2	32. 700	0 3. 37	0. 729
	Victoria	21. 2	33. 0	46. 0	46 33. 40	2	31. 823		
	Weisse XXIII, 602	24. 6	36. 3	49. 0	46 36. 63	2	32. 568	0 3. 23	0. 745
	Victoria	6. 5	19. 0	30. 0	48 18. 50	2	31. 815		
	Weisse XXIII, 602	9. 7	22. 0	33. 7	48 21. 80	2	32. 719	0 3. 30	0. 904
	Victoria	40. 0		5. 0	50 52. 50	2	31. 962		
	Weisse XXIII, 602	43. 2	55. 0	7. 9	50 55. 37	2	32. 650	0 2. 87	0. 688
	Victoria	29. 5	42. 0	54. 5	52 41. 93	2	31. 868		
	Weisse XXIII, 602	33. 0	45. 0	57. 5	52 45. 17	2	32. 742	0 3. 20	0. 874
	Victoria	40. 7	53. 2	5. 2	54 53. 03	2	32. 002		
	Weisse XXIII, 602	43. 1	56. 1	8. 0	54 55. 73	2	32. 618	0 2. 70	0. 616
	Victoria	14. 0	26. 0	39. 0	57 26. 33	2	31. 620		
	Weisse XXIII, 602	17. 0	29. 5	41. 8	57 29. 43	2	32. 350	0 3. 10	0. 730
	Victoria	22. 0	34. 3	47. 0	7 59 34. 43	2	31. 742		
	Weisse XXIII, 602	25. 0	37. 2	49. 5	59 37. 23	2	32. 391	− 0 2. 80	+ 0. 649

RESULTS.

Corr. Chron. + 12. 84 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XXIII, 602,	23 29 12. 34	+ 5 5 33. 4

Victoria—Weisse XXIII, 602, M. T. (h. m. s.)		Δ α (m. s.)	Δ δ (′ ″)
7 39 54. 65		− 0 3. 34	+ 0 14. 0
	Δ t	. 01	
	Δ ρ	. 00	. 01
	p	− . 03	+ 3. 3

VICTORIA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.	RESULTS.
850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
v. 23	Victoria	21.0	33.2	46.3	8 1 33.50	2	31.758			
	Weisse XXIII, 602	23.9	36.0	48.6	1 36.17	2	32.398	− 0 2.67	+ 0.640	
v. 14	Weisse XXIII, 602	56.6	8.9	21.2	7 26 8.90	2	33.190	+ 0 32.40	− 13.067	s. Corr. Chron. + 12.39 α δ h. m. s. ° ′ ″ Weisse XXIII, 602, 23 29 12.34 +5 5 33.43 Victoria—Weisse XXIII, 602, Δα Δδ M. T. h. m. s. m. s. ′ ″ 7 38 41.50 + 0 32.74 − 3 23.16 Δt + .09 Δρ .00 − .08 p − .04 + 3.33
	Victoria		41.7	53.2	26 41.30	2	46.257			
	Weisse XXIII, 602	32.1	44.3	57.0	28 44.47	2	33.228	0 32.35	13.101	
	Victoria		16.9	29.1	29 16.82	2	46.329			
	Weisse XXIII, 602	13.2	25.7	37.9	31 25.60	2	33.132	0 32.63	13.237	
	Victoria	46.1	58.3	10.3	31 58.23	2	46.369			
	Weisse XXIII, 602	3.7	16.0	28.2	33 15.97	2	33.089	0 32.73	13.180	
	Victoria	36.3	48.5	1.3	33 48.70	2	46.269			
	Weisse XXIII, 602	27.2	49.4	51.4	35 39.33	2	33.160	0 32.47	13.113	
	Victoria	59.4	12.0	24.0	36 11.80	2	46.273			
	Weisse XXIII, 602	32.2	44.1	56.2	37 44.17	2	33.140	0 33.13	13.218	
	Victoria	5.1	17.6	29.2	38 17.30	2	46.358			
	Weisse XXIII, 602	47.1	59.0	11.0	39 59.03	2	33.141	0 32 84	13.225	
	Victoria	19.3	32.1	44.2	40 31.87	2	46.366			
	Weisse XXIII, 602	21.6	34.3	46.7	42 34.20	2	33.112	0 32.65	13.320	
	Victoria		6.9	19.4	43 6.85	2	46.432			
	Weisse XXIII, 602	34.5	47.1	59.3	44 46.97	2	33.105	0 32.86	13.364	
	Victoria	7.5	19.7	32.3	45 19.83	2	46.469			
	Weisse XXIII, 602	19.4	31.7	44.0	47 31.70	2	33.119	0 32.90	13.245	
	Victoria	52.2		17.0	48 4.60	2	46.364			
	Weisse XXIII, 602	17.5	29.7	42.1	49 29.78	2	33.133	+ 0 33.15	− 13.335	
	Victoria	50.6	3.0	15.2	50 2.93	2	46.468			
v. 18	8233, B. A. C. . .	37.3	49.7	2.0	6 55 49.67	2	39.121	+ 0 5.45	+ 3.712	s. Corr. Chron. + 10.49 α δ h. m. s. ° ′ ″ 8233, B. A. C. 23 32 16.76 + 4 49 8.27 Victoria — 8233, B. A. C. Δα Δδ M. T. h. m. s. m. s. ′ ″ 7 20 6.65 + 0 6.24 + 0 54.29 Δt + .02 Δρ .00 − .02 p − .03 + 3.29
	Victoria			7.5	55 55.12	2	35.409			
	8233, B. A. C. . .	10.5	22.7	35.2	58 22.80	2	39.178	0 5.65	3.648	
	Victoria	16.0	28.5		58 28.45	2	35.530			
	8233, B. A. C. . .	17.0	29.2	42.0	7 0 29.40	2	39.100	0 5.70	3.719	
	Victoria		35.0	47.6	0 35.10	2	35.381			
	8233, B. A. C. . .	46.8	58.2	10.8	2 58.60	2	39.080	0 5.73	3.629	
	Victoria	52.0	4.0	17.0	3 4.33	2	35.451			
	8233, B. A. C. . .	56.1	8.7	21.2	5 8.67	2	39.088	0 5.43	3.615	
	Victoria	1.9	14.4	26.0	5 14.10	2	35.473			
	8233, B. A. C. . .	26.2	38.5	50.8	6 38.50	2	39.102	0 5.83	3.558	
	Victoria	32.0	44.0	57.0	6 44.33	2	35.544			
	8233, B. A. C. . .	42.0	54.5	6.8	8 54.43	2	39.060	0 6.07	3.475	
	Victoria	48.2	0.3	13.0	9 0.50	2	35.585			
	8233, B. A. C. . .	54.2	6.8	19.0	11 6.67	2	39.111	9 6.06	3.589	
	Victoria	0.2	13.0	25.0	11 12.73	2	35.522			
	8233, B. A. C. . .	16.0	28.2	40.3	14 28.16	2	39.091	0 5.91	3.531	
	Victoria	21.2	34.5	46.5	14 34.07	2	35.560			
	8233, B. A. C. . .	7.0	19.1	31.7	16 19.27	2	39.080	0 6.06	3.451	
	Victoria	13.2	25.3	37.5	16 25.33	2	35.629			
	8233, B. A. C. . .	21.3	33.2	45.7	7 22 33.40	2	39.139	+ 0 6.33	+ 3.550	(Continued.)
	Victoria	27.7	39.5	52.0	22 39.73	2	35.589			

VICTORIA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
Nov. 18	8233, B. A. C. . .	53.8	6.2	18.3	7 25 6.10	2	39.091	+ 0 6.40	+ 3.501	
	Victoria	0.2	12.5	24.8	25 12.50	2	35.590			
	8233, B. A. C. . .	1.4	13.6	26.2	27 13.73	2	39.084	0 6.40	3.541	
	Victoria	7.5	20.0	32.9	27 20.13	2	35.543			
	8233, B. A. C. . .	44.1	57.2	9.2	29 56.83	2	39.120	0 6.87	3.541	
	Victoria	51.0	4.1	16.0	30 3.70	2	35.579			
	8233, B. A. C. . .	59.2	10.9	23.0	32 11.03	2	39.042	0 6.84	3.368	
	Victoria	5.5	18.1	30.0	32 17.87	2	35.674			
	8233, B. A. C. . .	18.6	30.7	43.2	35 30.83	2	39.115	0 6.67	3.345	
	Victoria	25.2	37.3	50.0	35 37.50	2	35.770			
	8233, B. A. C. . .	16.5	29.2	41.3	37 29.00	2	39.132	0 6.83	3.463	
	Victoria	23.2	36.1	48.2	37 35.83	2	35.669			
	8233, B. A. C. . .	12.4	24.4	37.2	39 24.67	2	39.150	0 6.96	3.488	
	Victoria	19.2	31.4	44.3	39 31.63	2	35.662			
	8233, B. A. C. . .	17.3	29.3	41.9	41 29.50	2	39.090	0 6.83	3.540	
	Victoria	24.1	36.4	48.5	41 36.33	2	35.550			
	8233, B. A. C. . .	14.6	27.3	39.3	43 27.07	2	39.109	+ 0 6.86	+ 3.410	
	Victoria	21.5	34.0	46.3	43 33.93	2	35.690			
Nov. 21	8233, B. A. C. . .	4.1		29.2	8 17 16.65	1	47.981	+ 2 21.05	− 22.987	s.
	Victoria . . .	25.1	38.0	50.0	19 37.70	2	40.801			Corr. Chron. + 9.34
	8233, B. A. C . .	0.3	12.5	24.7	21 12.50	1	47.984	2 21.53	23.033	α δ
	Victoria	22.1	34.0	46.0	23 34.03	2	40.850			h. m. s. ′ ″
	8233, B. A. C. . .	26.5	39.0	51.7	25 39.07	1	47.908	2 21.43	23.018	8233, B. A. C. 23 32 16.74 + 49 7.13
	Victoria	48.2	0.3	13.0	28 0.50	2	40.759			Victoria — 8233, B. A. C. Δα Δδ
	8233, B. A. C. . .	18.2	31.0	43.3	29 30.83	1	47.920	2 22.04	23.086	M. T. h. m. s. m. s. ′ ″
	Victoria	40.3	53.1	5.2	31 52.87	2	40.839			8 40 47.02 + 2 21.94 − 5 54.33
	8233, B. A. C. . .	34.0	46.1	58.5	33 46.20	1	47.902	2 21.50	23.021	Δt .39
	Victoria	55.2	7.9	20.0	36 7.70	2	40.756			Δρ .00 − .15
										p + .09 + 3.22
	8233, B. A. C. . .	40.2	52.7	5.3	42 52.73	1	47.772	2 21.57	23.064	
	Victoria	2.0	14.1	26.8	45 14.30	2	40.669			
	8233, B. A. C. . .	34.0	46.3	59.2	46 46.50	1	47.849	2 22.27	22.980	
	Victoria	56.3	9.0	21.0	49 8.77	2	40.662			
	8233, B. A. C. . .	7.4	19.7	32.2	51 19.77	1	47.810	2 22.63	23.034	
	Victoria	30.0	42.2	55.0	53 42.40	2	40.677			
	8233, B. A. C. . .	5.2	17.4	29.7	55 17.43	1	47.783	2 22.60	23.186	
	Victoria	27.9	40.0	52.2	57 40.03	2	40.802			
	8233, B. A. C. . .	43.3	55.8	8.0	58 55.70	1	47.765	+ 2 22.77	− 23.133	
	Victoria	6.2	18.3	30.9	9 1 18.47	2	40.731			
Nov. 24	Victoria	39.0	51.0	3.6	7 18 51.00	1	46.240			
	Weisse XXIII, 803	1.7	13.5	26.2	21 13.80	3	37.644	− 2 22.80	+ 51.484	
	Victoria	12.0	24.7	37.0	23 24.57	1	46.340			
	Weisse XXIII, 803	34.7	46.9	59.3	25 46.97	3	37.722	2 22.40	51.462	
	Victoria	5.8		31.0	27 18.40	1	46.380			
	Weisse XXIII, 803	27.9	40.3	52.0	29 40.07	3	37.640	2 21.65	51.340	
	Victoria	3.0		28.2	32 15.60	1	46.325			
	Weisse XXIII, 803	25.2	37.7	50.0	7 34 37.63	3	37.635	− 2 22.03	+ 51.390	(Continued.)

VICTORIA.

ATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic. w.	Mic.	Planet—Star. Δ α	Δ mic.
850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
v. 24	Victoria	13. 2	25. 2	37. 5	7 36 25. 30	1	46. 130		
	Weisse XXIII, 803	34. 7	47. 0	59. 2	38 46. 97	3	37. 440	— 2 21 67	— 51. 390
	Victoria	48. 2	0. 5	12. 2	41 0. 30	1	45. 950		
	Weisse XXIII, 803	9. 6	21. 7	34. 1	43 21. 80	3	37. 285	2 21. 50	51. 415
	Victoria	44. 0	56. 2	9. 0	45 56. 40	1	45. 849		
	Weisse XXIII, 803	5. 2	17. 9	30. 0	48 17. 70	3	37. 200	2 21. 30	51. 431
	Victoria	22. 1	34. 0	46. 2	52 34. 10	1	45. 862		
	Weisse XXIII, 803	43. 7	56. 1	8. 2	54 56. 00	3	37. 161	2 21. 90	51. 379
	Victoria	47. 8		13. 0	57 0. 40	1	45. 889	2 21. 17	51. 272
	Weisse XXIII, 803	9. 2	21. 4	34. 1	59 21. 57	3	37. 081		
	Victoria	47. 1	59. 3	11. 3	8 0 59. 23	1	45. 803	— 2 20. 97	— 51. 325
	Weisse XXIII, 803	8. 1	20. 2	32. 3	3 20. 20	3	37. 048		
ov. 30	Weisse XXIII, 803	13. 8	26. 0	38. 0	6 17 25. 93	2	46. 425	+ 2 59. 94	+ 36. 903
	Victoria	13. 2	26. 2	38. 2	20 25. 87	1	39. 689		
	Weisse XXIII, 934	22. 9	35. 0	47. 5	23 35. 13	3	38. 388	— 3 9. 26	58. 779
	Weisse XXIII, 803	47. 1	59. 0	11. 2	31 59. 10	2	46. 420	+ 3 0. [illegible]	36. 846
	Victoria	47. 5		12. 5	35 0. 00	1	39. 741		
	Weisse XXIII, 934	56. 0	8. 2	20. 7	38 8. 30	3	38. 359	— 3 8. 30	58. 698
	Weisse XXIII, 803	19. 1	31. 0	43. 5	41 31. 20	2	46. 477	+ 3 0. 96	36. 779
	Victoria	20. 0	32. 5	44. 0	44 32. 16	1	39. 865		
	Weisse XXIII, 934	28. 0	40. 0	52. 5	47 40. 16	3	38. 622	— 3 8. 00	58. 837
	Weisse XXIII, 803	13. 5	26. 3	38. 4	50 26. 07	2	46. 401	+ 3 1. 00	36. 513
	Victoria	15. 1	27. 1	39. 0	53 27. 07	1	40. 055		
	Weisse XXIII, 934	22. 2	35. 0	47. 2	56 34. 80	3	38. 634	— 3 7. 73	58. 659
	Weisse XXIII, 803	23. 9	36. 0	48. 1	8 4 36. 00	2	46. 479	+ 3 2. 26	36. 646
	Victoria	26. 8	38. 0	50. 0	7 38. 26	1	40. 000		
	Weisse XXIII, 934	33. 0	45. 0	57. 2	10 45. 07	3	38. 675	— 3 6. 81	58. 755
	Weisse XXIII, 803	56. 5	9. 3	21. 3	14 9. 03	2	46. 530	+ 3 2. 44	36. 537
	Victoria	59. 0	11. 6	23. 8	17 11. 47	1	40. 160		
	Weisse XXIII, 934	5. 8	18. 0	30. 2	20 18. 00	3	38. 660	— 3 6. 53	58. 580
	Weisse XXIII, 803	41. 9	54. 2	6. 6	22 54. 23	2	46. 482	+ 3 2. 27	36. 620
	Victoria	44. 2	56. 4	8. 9	25 56. 50	1	40. 029		
	Weisse XXIII, 934	50. 9	3. 0	15. 0	29 2. 97	3	38. 542	— 3 6. 47	+ 58. 593
ec. 8	Weisse XXIII, 1032	23. 2	35. 8	48. 2	6 21 35. 73	2	50. 298	+ 0 24. 94	+ 24. 057
	Victoria	48. 5	0. 5	13. 0	22 0. 67	1	56. 408		
	Weisse XXIII, 1032	43. 6	56. 2		23 56. 05	2	50. 336	0 24. 85	24. 189
	Victoria	8. 2	21. 3	33. 2	24 20. 90	1	56. 314		
	Weisse XXIII, 1032	50. 3	2. 7		26 2. 60	2	50. 249	0 25. 20	24. 078
	Victoria	15. 2	28. 2	40. 0	27 27. 80	1	56. 338		
	Weisse XXIII, 1032	6. 8	19. 2		30 19. 03	2	50. 249	0 25. 10	24. 057
	Victoria	32. 0	44. 2	56. 2	30 44. 13	1	56. 359		
	Weisse XXIII, 1032	15. 3	27. 9		33 27. 83	2	50. 248	0 25. 40	24. 053
	Victoria	41. 0	53. 0	5. 7	33 53. 23	1	56. 362		
	Weisse XXIII, 1032	46. 5	59. 1		35 59. 10	2	50. 282	0 25. 40	24. 050
	Victoria	12. 2	24. 3	37. 0	36 24. 50	1	56. 399		
	Weisse XXIII, 1032	0. 2	12. 5		37 12. 48	2	50. 191	+ 0 25. 65	+ 23. 920
	Victoria	26. 0	38. 2	50. 2	37 38. 13	1	56. 438		

RESULTS.

Nov. 24:

Corr. Chron.		s. + 8. 14	
	α h. m. s.	δ ° ′ ″	
Weisse XXIII, 803,	23 39 24. 12	+ 4 25 20. 73	
Victoria—Weisse XXIII, 803, M. T. h. m. s.	Δ α m. s.	Δ δ ′ ″	
7 39 56. 77	— 2 21. 74	+13 9. 81	
Δ t	— . 39		
Δ ρ	. 00	. 32	
p	+ . 02	+ 3. 14	

Nov. 30:

Corr. Chron.		m. s. + 0 3. 65	
	α h. m. s.	δ ° ′ ″	
Weisse XXIII, 803,	23 39 24. 04	+ 4 25 20. 39	
934,	23 45 34. 50	4 19 41. 75	
Victoria—Weisse XXIII, 803, M. T. h. m. s.	Δ α m. s.	Δ δ ′ ″	
6 54 56. 70	+ 3 1. 39	+ 9 23. 93	
Δ t	+ . 50		
Δ ρ	. 00	+ . 23	
p	— . 01	+ 2. 99	
Victoria—Weisse XXIII, 934. M. T. h. m. s.	m. s.	′ ″	
6 54 56. 70	— 3 7. 57	+15 4. 00	
Δ t	— . 51		
Δ ρ	. 00	+ . 37	
p	— . 01	+ 2. 99	

Dec. 8:

Corr. Chron.		m s. + 0 2. 12	
Victoria—Weisse XXIII, 1032. M. T. h. m. s.	m. s.	′ ″	
6 43 54. 70	+ 0 25. 76	+ 6 10. 58	
Δ t	+ . 07		
Δ ρ	. 00	+ . 15	
p	. 00	+ 2. 81	

(Continued.)

VICTORIA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
1850. Dec. 8	Weisse XXIII, 1032	36.2	48.3		6 39 48.43	2	50.229	+ 0 25.40	+ 24.064
	Victoria	1.3	14.0	26.2	40 13.83	1	56.332		
	Weisse XXIII, 1032	8.7	21.2		50 21.15	2	50.058	0 25.65	23.997
	Victoria	34.2	47.0	59.2	50 46.80	1	56.229		
	Weisse XXIII, 1032	52.7	5.1	17.1	52 4.97	2	50.059	0 26.13	23.997
	Victoria	19.3	31.0	43.0	53 31.10	1	56.229		
	Weisse XXIII, 1032	3.2	15.9	28.2	56 15.77	2	50.050	0 25.66	24.249
	Victoria	29.0	41.3	54.0	56 41.43	1	55.968		
	Weisse XXIII, 1032	14.3	27.0	39.0	7 1 26.77	2	50.362	0 26.73	24.351
	Victoria	41.2	53.3	6.0	1 53.50	1	56.178		
	Weisse XXIII, 1032	41.2	53.2	6.2	6 53.27	2	50.239	0 27.63	24.186
	Victoria	8.5	21.0	33.2	7 20.90	1	56.220		
	Weisse XXIII, 1032	41.2	53.3	5.2	10 53.23	2	50.389	+ 0 26.94	+ 24.316
	Victoria	8.5	20.0	32.0	11 20.17	1	56.240		
Dec. 9	Weisse XXIII, 1032	21.0	33.8	46.0	6 34 33.60	2	50.028	+ 1 31.27	+ 30.045
	Victoria	52.3	5.0	17.3	36 4.87	1	50.150		
	Weisse XXIII, 1032	6.8	19.1	31.7	37 19.20	2	50.070	1 31.70	29.958
	Victoria	38.2	51.0	3.5	38 50.90	1	50.279		
	Weisse XXIII, 1032	56.8	8.7	21.3	42 8.93	2	50.059	1 31.47	30.248
	Victoria	28.0	40.2	53.0	43 40.40	1	49.978		
	Weisse XXIII, 1032	49.7	2.0	14.6	45 1.98	2	49.968	1 31.85	29.967
	Victoria	21.3	33.5		46 33.83	1	50.175		
	Weisse XXIII, 1032	7.6	19.3	32.5	48 19.80	2	50.010	1 31.70	30.048
	Victoria	39.3	51.2	4.0	49 51.50	1	50.129		
	Weisse XXIII, 1032	33.2	45.7	58.3	51 45.73	2	49.969	1 31.77	30.004
	Victoria	5.0	17.8	29.7	53 17.50	1	50.132		
	Weisse XXIII, 1032	22.2	34.6	47.1	54 34.63	2	49.950	1 32.30	30.072
	Victoria	54.5	7.1	19.2	56 6.93	1	50.045		
	Weisse XXIII, 1032	57.0	9.0	21.2	58 9.07	2	50.084	1 31.83	30.181
	Victoria	28.7	41.0	53.0	59 40.90	1	50.070		
	Weisse XXIII, 1032	41.2	52.9	5.7	7 0 53.26	2	50.078	+ 1 32.31	+ 30.176
	Victoria	13.0	25.7	38.0	2 25.57	1	50.069		
Dec. 11	Weisse XXIII, 1032	50.3	3.0	15.1	8 19 2.80	3	48.371	+ 3 50.26	+ 44.748
	Weisse XXIII, 1045		37.6	50.0	19 37.55	1	51.102	3 15.51	− 12.600
	Victoria	41.0	53.2	5.0	22 53.06	2	33.535		
	Weisse XXIII, 1032	29.1	41.3	54.1	28 41.50	3	48.480	3 50.80	+ 44.621
	Weisse XXIII, 1045		16.0	28.4	29 16.00	1	51.159	3 16.30	− 12.779
	Victoria		32.0	45.0	32 32.30	2	33.771		
	Weisse XXIII, 1032	50.2	2.1	14.3	35 2.20	3	48.550	3 50.93	+ 44.791
	Weisse XXIII, 1045		37.2	49.2	35 37.20	1	51.158	3 15.93	− 12.680
	Victoria	41.2	53.2	5.0	38 53.13	2	33.671		
	Weisse XXIII, 1032	31.2	43.2	55.0	41 43.13	3	48.442	3 51.60	+ 44.932
	Weisse XXIII, 1045		18.0	30.2	42 18.13	1	51.257	3 16.60	− 12.332
	Victoria	22.0	35.2	47.0	45 34.73	2	33.422		
	Weisse XXIII, 1032	18.1	30.2	42.3	9 7 30.20	3	48.458	3 53.07	+ 44.912
	Weisse XXIII, 1045		5.0	17.5	8 5.20	1	51.282	+ 3 18.07	− 12.343
	Victoria	11.0	23.2	35.6	11 23.27	2	33.458		

RESULTS.

Dec. 9:

Corr. Chron. + 0 m. 1.37 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XXIII, 1032,	23 50 9.45	+ 4 34 28.50

Victoria—Weisse XXIII, 1032,

M. T. (h. m. s.)		Δ α (m. s.)	Δ δ (′ ″)
6 49 38.30		+ 1 31.80	+ 7 42.28
	Δ t	+ .25	
	Δ ρ	.00	+ .19
	p	+ .01	+ 2.78

Dec. 11:

Corr. Chron. + 0 m. 0.91 s.

	α (h. m. s.)	δ (° ′ ″)
Weisse XXIII, 1032,	23 50 9.42	+ 4 34 28.36
1045,	23 50 41.14	4 49 9.96

Victoria—Weisse XXIII, 1032,

M. T. (h. m. s.)		Δ α (m. s.)	Δ δ (′ ″)
8 42 16.21		+ 3 51.33	+ 11 28.58
	Δ t	+ .63	
	Δ ρ	.00	+ .31
	p	+ .16	+ 2.81

Victoria—Weisse XXIII, 1045,

		Δ α (m. s.)	Δ δ (′ ″)
		+ 3 16.84	− 3 12.83
	Δ t	+ .53	
	Δ ρ	.00	− .09
	p	+ .16	+ 2.81

VICTORIA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.		Mic.	Planet—Star. Δα	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m s.	w.	revs.	m. s.	revs.	m. s.
Dec. 20	Victoria	27.0	39.2	51.2	7 58 39.13	3	35.371			Corr. Chron. + 0 4.70
	Weisse, 0.83		0.0	12.2	59 0.03	2	23.050	− 0 20.90	− 42.233	
	Victoria	48.2	0.6	12.9	8 2 0.57	3	35.252			α δ h. m. s. ° ′ ″
	Weisse, 0.83		21.2	34.0	2 21.42	1	53.360	0 20.85	41.804	Weisse, 0.83 0 5 8.24 + 5 20 47.98
	Victoria	40.3	52.3		6 52.38	3	35.041			Victoria — Weisse, 0.83 Δα Δδ
	Weisse, 0.83	1.0	12.9	25.2	7 13.03	2	23.265	0 20.65	41.688	M. T.
	Victoria	2.2	14.0		9 14.00	3	35.215			h. m. s. m. s. ′ ″
	Weisse, 0.83		34.2	47.1	9 34.20	2	23.379	0 20.20	41.748	8 17 49.14 − 0 20.43 −10 40.48
	Victoria	55.2	7.9		10 7.90	3	35.189			Δt − .05; Δρ − .00 − .29
	Weisse, 0.83		28.3	40.5	10 28.30	3	23.325	0 20.40	41.776	p + .13 + 2.54
	Victoria	47.3	59.7		11 59.70	3	35.238			
	Weisse, 0.83		19.9	32.5	12 19.90	2	23.329	0 20.20	41.821	
	Victoria	29.7	42.0		15 42.00	3	35.132			
	Weisse, 0.83		2.0	14.0	16 2.00	2	23.282	0 20.00	41.762	
	Victoria	43.3	56.0		21 55.87	3	35.139			
	Weisse, 0.83	3.0	15.7	28.0	22 15.57	2	23.361	0 19.70	41.690	
	Victoria	24.1	36.8	49.0	24 36.63	3	35.191			
	Weisse, 0.83	44.2		8.9	24 56.55	2	23.430	0 19.92	41.673	
	Victoria	30.0	43.0	55.0	27 42.67	3	35.100			
	Weisse, 0.83	49.0	1.5	14.7	28 1.13	2	23.572	0 18.46	41.440	
	Victoria	22.0	34.1	47.0	30 34.37	3	34.969			
	Weisse, 0.83		53.5	6.2	30 53.67	2	23.588	0 19.30	41.293	
	Victoria	43.1	55.0	7.9	33 55.33	3	34.970			
	Weisse, 0.83	2.0		27.1	34 14.55	2	23.235	0 19.22	41.647	
	Victoria	5.2	17.2		37 17.20	3	34.773			
	Weisse, 0.83		36.0	48.2	37 36.00	2	23.505	− 0 18.80	− 41.180	
Dec. 21	Weisse, 0.83	21.2	33.2	45.7	6 26 33.37	1	52.135	+ 0 49.66	− 29.519	m. s.
	Victoria	10.9	23.0	35.2	27 23.63	2	51.487			Corr. Chron. + 0 5.89
	Weisse, 0.83	29.5	42.0	54.7	28 42.07	1	52.201	0 49.53	29.389	α δ
	Victoria	19.0		44.0	29 31.60	2	51.423			h. m. s. ° ′ ″
	Weisse, 0.83	52.2	5.0	17.9	32 5.03	1	52.247	0 50.22	29.373	Weisse, 0.83 0 5 8.24 − 5 20 47.80
	Victoria	43.0		7.5	32 55.25	2	51.453			Victoria — Weisse, 0.83 Δα Δδ
	Weisse, 0.83	23.2	36.0	48.3	35 35.83	1	52.390	0 50.10	29.277	M. T.
	Victoria	13.5	26.0	38.3	36 25.93	2	51.500			h m. s. m. s. ′ ″
	Weisse, 0.83	5.3	17.8	30.2	38 17.77	1	52.625	0 50.00	29.402	6 49 59.64 + 0 50.78 − 7 30.87
	Victoria	55.1	8.0	20.2	39 7.77	2	51.860			Δt − .14; Δρ − .00 − .19; p + .05 + 2.48
	Weisse, 0.83	27.6	40.1	52.6	41 40.10	1	52.712	0 50.00	29.285	
	Victoria	18.0	30.3	42.0	42 30.10	2	51.830			
	Weisse, 0.83	44.1	57.1	9.2	43 56.80	1	52.690	0 50.45	29.359	
	Victoria		47.2	0.0	44 47.25	2	51.882			
	Weisse, 0.83	28.6	41.0	53.2	47 40.93	1	52.731	0 50.97	29.347	
	Victoria	19.7	32.0	44.0	48 31.90	2	51.911			
	Weisse, 0.83	10.9	23.5	36.1	50 23.50	1	52.634	0 50.90	29.383	
	Victoria		14.4	27.0	51 14.40	2	51.850			
	Weisse, 0.83	18.0	30.3	42.5	52 30.27	1	52.723	+ 0 50.93	− 29.285	
	Victoria	9.2	21.4	33.0	53 21.20	2	51.841			(Continued.)

VICTORIA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δα	Δ mic.	RESULTS.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.	
Dec. 21	Weisse, 0.83 - -	39.4	52.2	4.4	6 54 52.00	1	52.688	+ 0 51.03	— 29.339	
	Victoria - - - -	30.9	43.0	55.2	55 43.03	2	51.860			
	Weisse, 0.83 - -	36.2	48.4	1.2	57 48.60	1	52.970	0 51.17	29.230	
	Victoria - - - -	27.5	39.8	52.0	58 39.77	2	52.033			
	Weisse, 0.83 - -	11.0	24.1	36.5	7 4 23.87	1	53.029	0 51.56	29.200	
	Victoria - - - -	3.0	15.3	28.0	5 15.43	2	52.062			
	Weisse, 0.83 - -	35.7	48.0	0.3	6 48.00	1	53.012	0 51.57	29.083	
	Victoria - - - -	27.4	39.3	52.0	7 39.57	2	51.928			
	Weisse, 0.83 - -	21.5	34.0	46.3	10 33.93	1	53.169	0 52.04	28.958	
	Victoria - - - -	14.0	25.8	38.1	11 25.97	2	51.960			
	Weisse, 0.83 - -	43.2	55.2	8.0	12 55.47	1	53.199	+ 0 52.30	— 28.920	
	Victoria - - - -	35.2	48.0	0.1	13 47.77	2	51.952			
Dec. 24	Victoria - - - -	50.2	3.0	15.0	9 7 2.73	2	37.209			s.
	Weisse, 0.210 - -	17.0	29.2	41.5	9 29.23	2	24.925	— 2 26.50	— 12.284	Corr. Chron. + 7.31
	Victoria - - - -	56.1	9.1	21.0	12 8.73	2	37.002			α δ
	Weisse, 0.210 - -	22.7	35.1	47.3	14 35.03	2	25.029	2 26.30	11.973	h. m. s. ° ′ ″ Weisse, 0.210, 0 12 24.98 + 5 27 47.92
	Victoria - - - -	44.2	56.3	9.2	15 56.57	2	36.971			
	Weisse, 0.210 - -	10.3	22.9	35.0	18 22.73	2	24.932	2 26.16	12.039	Victoria — Weisse, 0.210, Δα Δδ
	Victoria - - - -	4.6	17.0	29.2	20 16.93	2	36.860			M. T. h. m. s. m. s. ′ ″
	Weisse, 0.210 - -	30.6	42.9	55.0	22 42.83	2	24.819	2 25.90	12.041	9 20 18.69 — 2 26.02 — 3 4.52
	Victoria - - - -	44.2	56.9	9.2	24 56.77	2	36.770			Δt — .40 Δρ .00 — .11
	Weisse, 0.210 - -	9.7	22.5	35.0	27 22.40	2	24.880	2 25.63	11.890	p + .17 + 2.54
	Victoria - - - -	40.2		4.8	28 52.50	2	36.791			
	Weisse, 0.210 - -	5.7	18.4	30.6	31 18.23	2	24.765	2 25.73	12.026	
	Victoria - - - -	53.2	5.0	18.0	32 5.40	2	36.689			
	Weisse, 0.210 - -	19.1	31.2	43.7	35 31.33	2	24.899	— 2 25.93	— 11.790	
Dec. 26	Weisse, 0.210 - -	27.1	39.0	51.0	8 31 39.03	3	45.012	+ 0 8.97	+ 18.669	s.
	Victoria - - - -	36.0	48.0	0.0	31 48.00	2	56.255			Corr. Chron. + 8 08
	Weisse, 0.210 - -	3.4		28.0	34 15.70	3	44.950	0 8.80	18.613	α δ
	Victoria - - - -	12.0	25.0	36.5	34 24.50	2	56.249			h. m. s. ° ′ ″
	Weisse, 0.210 - -	33.0		58.0	40 45.50	3	44.937	0 8.73	18.598	Weisse, 0.210, 0 12 25.03 + 5 27 47.77
	Victoria - - - -	42.0	54.2	6.5	40 54.23	2	56.251			Victoria — Weisse, 0.210, Δα Δδ
	Weisse, 0.210 - -	39.2		4.0	42 51.60	3	44.869	0 8.57	18.638	M. T.
	Victoria - - - -	48.0	0.0	12.5	43 0.17	2	56.143			h. m. s. m. s. ′ ″
	Weisse, 0.210 - -	24.3		49.0	45 36.65	3	45.050	0 9.12	18.712	8 51 16.97 + 0 9.40 + 4 48.53 Δt .02
	Victoria - - - -	33.0	46.2	58.1	45 45.77	2	56.250			Δρ .00 .15 p + .16 + 2.47
	Weisse, 0.210 - -	10.3		35.4	42 28.85	3	44.885	0 8.95	18.698	
	Victoria - - - -	19.2	32.0	44.2	48 31.80	2	56.099			
	Weisse, 0.210 - -	43.7		9.2	50 56.45	3	45.030	0 8.95	18.725	
	Victoria - - - -	53.0	5.0	18.2	51 5.40	2	56.217			
	Weisse, 0.210 - -	19.2		44.0	55 31.60	3	44.960	0 9.63	18.943	
	Victoria - - - -	29.5	41.0	53.2	55 41.23	2	55.929			
	Weisse, 0.210 - -	33.0	46.0	58.0	9 2 45.67	3	44.980	0 9.96	18.934	
	Victoria - - - -	43.2	55.7	8.0	2 55.63	2	55.958			
	Weisse, 0.210 - -	23.2	36.0	48.0	5 35.73	3	44.910	+ 0 10.07	+ 18.862	
	Victoria - - - -	33.5	45.7	58.2	5 45.80	2	55.960			(Continued.)

VICTORIA.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
		s.	s.	s.	h. m. s.	w. revs	m. s.	revs.
1850. Dec. 26	Weisse, 0.210 - -	14.2	27.0	39.0	9 8 26.73	3 45.150	+ 0 10.34	+ 19.023
	Victoria - - - -	25.0	37.0	49.2	8 37.07	2 56.039		
	Weisse, 0.210 - -	54.1	6.0	19.0	13 6.37	3 44.862	+ 0 10.73	+ 18.864
	Victoria - - - -	4.5	17.1	29.8	13 17.10	2 55.910		
Dec. 27	Weisse, 0.210 - -	7.1	20.0	32.2	6 53 19.77	3 43.242	+ 1 22.56	+ 33.644
	Victoria - - - -	30.0	42.0	55.0	54 42.33	2 39.510		
	Weisse, 0.210 - -	22.9		47.3	59 35.10	3 43.310	1 23.40	33.762
	Victoria - - - -	46.0	58.5	11.0	7 0 58.50	2 39.460		
	Weisse, 0.210 - -	12.8	25.0	37.1	3 24.97	3 43.336	1 23.20	33.543
	Victoria - - - -		48.0	0.5	4 48.17	2 39.705		
	Weisse, 0.210 - -	32.5	44.2	57.0	6 44.57	3 43.282	1 23.76	33.815
	Victoria - - - -	56.0	8.0	21.0	8 8.33	2 39.379		
	Weisse, 0.210 - -	34.2	47.1	59.0	9 46.77	3 43.269	1 24.06	33.873
	Victoria - - - -	58.0	11.0	23.5	11 10.83	2 39.308		
	Weisse, 0.210 - -	28.5	40.7	53.5	12 40.90	3 43.275	1 23.63	33.884
	Victoria - - - -	52.0	4.6	17.0	14 4.53	2 39.303		
	Weisse, 0.210 - -	10.0	22.3	35.0	15 22.43	3 43.220	1 23.90	33.893
	Victoria - - - -	34.0	46.0	59.0	16 46.33	2 39.239		
	Weisse, 0.210 - -	14.5	27.0	39.2	18 26.90	3 43.389	1 23.93	34.019
	Victoria - - - -	38.2	51.3	3.0	19 50.83	2 39.282		
	Weisse, 0.210 - -	8.0	20.3	33.0	24 20.43	3 43.360	1 24.57	33.984
	Victoria - - - -	33.0	45.0	57.0	25 45.00	2 39.288		
	Weisse, 0.210 - -	9.7	22.2	35.1	27 22.33	3 43.389	1 24.75	34.041
	Victoria - - - -	35.0	47.2	59.0	28 47.07	2 39.260		
	Weisse, 0.210 - -	32.5	45.7	57.4	30 45.20	3 43.412	1 24.23	34.115
	Victoria - - - -	57.0	9.3	22.0	32 9.43	2 39.209		
	Weisse, 0.210 - -	36.1	48.3	0.7	7 33 48.37	3 43.420	+ 1 24.96	+ 34.106
	Victoria - - - -	1.0	13.0	26.0	35 13.33	2 39.226		

RESULTS.

Corr. Chron. + 8.78 s.

		α	δ
		h. m. s.	° ′ ″
Weisse, 0.210,		0 12 25.04	+ 5 27 47.70
Victoria — Weisse, 0.210,	M. T.	Δα	Δδ
	h. m. s.	m. s.	′ ″
	7 16 10.84	+ 1 23.91	+ 8 40.73
	Δt	.22	
	Δρ	.00	.22
	p	+ .08	+ 2.38

EGERIA.

DATE.	OBJECTS.	Observed times of transit.				Mic.	Planet—Star.		RESULTS.
		A.	B.	C.	Mean.		Δα	Δ mic.	
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
Dec. 24	Weisse I, 501 - -	10.2	23.0	35.2	7 32 22.80	2 15.702	+ 4 14.70	− 8.620	Corr. Chron. m. s. + 0 7.31
	Egeria - - - -	25.0		50.0	36 37.50	2 24.322			
	Weisse I, 501 - -	14.2	27.0	40.2	39 27.13	2 15.780	4 15.10	8.330	α δ
	Egeria - - - -	30.2	42.0	54.5	43 42.23	2 24.110			h. m. s. ° ′ ″
	Weisse I, 501 - -	4.2	16.2	29.2	57 16.53	2 15.795	4 15.27	8.115	Weisse I, 501, 1 29 11.86 +11 22 35.56
	Egeria - - - -	19.2	32.0	44.2	8 1 31.80	2 23.910			Egeria—Weisse I, 501, Δα Δδ
	Weisse I, 501 - -	29.1	41.3	54.1	4 41.50	2 15.835	4 15.23	7.975	M. T.
	Egeria - - - -	44.0	57.0	9.2	8 56.73	2 23.810			h. m. s. m. s. ′ ″ 8 2 49.23 + 4 15.12 − 2 3.92
	Weisse I, 501 - -	53.2	5.1	18.1	13 5.47	2 16.092	4 15.20	7.709	Δt + .70
	Egeria - - - -	8.0	21.0	33.0	17 20.67	2 23.801			Δρ .00 − .04 p + .04 + 2.10
	Weisse I, 501 - -	35.0	47.0	0.0	24 47.33	2 16.322	+ 4 15.24	− 7.626	
	Egeria - - - -	50.2	2.5	15.0	28 2.57	2 23.948			
Dec. 26	Weisse I, 501 - -	8.2	21.0	33.0	6 20 20.73	3 42.493	+ 4 39.84	+ 41.130	
	Weisse I, 539 - -		24.0	37.0	22 24.23	1 31.685	2 36.34	− 29.757	
	Egeria - - - -	48.0	0.7	13.0	25 0.57	2 31.275			
	Weisse I, 501 - -	11.9	24.2	37.2	27 24.43	3 42.359	4 39.44	+ 41.142	m. s.
	Weisse I, 539 - -	15.0	27.9	40.2	29 27.70	1 31.691	2 36.17	− 29.605	Corr. Chron. + 0 8.08
	Egeria - - - -	51.5	4.1	16.0	32 3.87	2 31.129			
	Weisse I, 501 - -	47.4	59.0	12.3	33 59.57	3 42.400	4 39.83	+ 41.352	α δ
	Weisse I, 539 - -	50.3	3.0	16.0	36 3.10	1 31.692	2 36.30	− 29.435	h. m. s. ° ′ ″ Weisse I, 501, 1 29 11.83 +11 22 35.45
	Egeria - - - -	27.2	39.1	51.9	38 39.40	2 30.960			539, 1 31 15.76 11 40 44.58
	Weisse I, 501 - -	10.4	23.2	36.0	40 23.20	3 42.412	4 39.93	+ 41.490	
	Weisse I, 539 - -	14.0	26.5	39.2	42 26.57	1 31.666	2 36.56	− 29.335	Egeria—Weisse I, 501, Δα Δδ
	Egeria - - - -	50.7	3.0	15.7	45 3.13	2 30.834			M. T. h. m. s. m. s. ′ ″
	Weisse I, 501 - -	1.7	14.1	26.6	47 14.13	3 42.370	4 40.27	+ 41.694	6 56 38.26 + 4 39.98 +10 40.74
	Weisse I, 539 - -	5.0	18.0	30.2	49 17.73	1 31.628	2 36.67	− 29.127	Δt + .77
	Egeria - - - -	42.0	54.2	7.0	51 54.40	2 30.588			Δρ .00 + .22
	Weisse I, 501 - -	39.2	51.7	4.3	54 51.73	3 42.465	4 39.87	+ 41.777	p − .02 + 2.06
	Weisse I, 539 - -	42.5	55.0	8.1	56 55.20	1 31.638	2 36.40	− 29.129	Egeria—Weisse I, 539,
	Egeria - - - -	19.3	31.5	44.0	59 31.60	2 30.600			M. T. h. m. s. m. s. ′ ″
	Weisse I, 501 - -	36.1	48.5	1.2	7 2 48.60	3 42.319	4 40.33	− 41.834	6 56 38.26 + 2 36.48 − 7 27.92
	Weisse I, 539 - -	39.6	52.4	5.1	4 52.37	1 31.649	2 36.56	− 28.915	Δt + .33
	Egeria - - - -	16.5	29.1	41.2	7 28.93	2 30.397			Δρ .00 − .16
	Weisse I, 501 - -	44.1	56.5	9.2	8 56.60	3 42.446	4 39.73	+ 42.157	p − .02 + 2.06
	Weisse I, 539 - -	47.4	59.7	12.7	10 59.93	1 31.556	2 36.40	− 28.812	
	Egeria - - - -	24.0	36.0	49.0	13 36.33	2 30.201			
	Weisse I, 501 - -	17.2	29.1	42.2	17 29.50	3 42.350	4 39.77	+ 42.061	
	Weisse I, 539 - -	20.0	32.5	45.0	19 32.50	1 31.550	2 36.77	− 28.818	
	Egeria - - - -	56.8	9.0	22.0	22 9.27	2 30.201			
	Weisse I, 501 - -	41.7	54.2	7.2	24 54.37	3 42.321	4 39.90	+ 42.243	
	Weisse I, 539 - -	44.7	57.9	10.4	26 57.67	1 31.662	+ 2 36.60	− 28.495	
	Egeria - - - -		34.5	47.0	29 34.27	2 29.990			
Dec. 27	Weisse I, 539 - -	19.2	31.2	44.0	5 57 31.47	3 29.050	+ 2 50.40	− 4.450	
	Egeria - - - -		22.0	34.0	6 0 21.87	3 33.500			
	Weisse I, 539 - -	6.5	19.1	31.7	2 19.10	3 29.092	2 51.27	4.256	
	Egeria - - - -	58.0	10.0	23.0	5 10.37	3 33.348			
	Weisse I, 539 - -	9.4	22.0	35.0	6 22.13	3 29.089	+ 2 51.30	− 4.125	
	Egeria - - - -	1.0	13.3	26.0	9 13.43	3 33.214			

(Continued.)

VENUS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
Oct. 19	Venus, N. P. - -	9.5	23.4	37.2	6 3 23.36				
	30556, Lalande - -		13.2	27.1	4 13.21	2	28.280		
	Venus, N. P. - -	18.7	32.4	46.2	6 32.43	2	46.345		
	30556, Lalande - -	7.1	20.9	35.3	7 21.10	2	30.805	— 0 48.67	— 15.540
	Venus, S. P. - -	49.2	3.2	17.1	10 3.16	2	48.421		
	30556, Lalande - -		51.3	5.3	10 51.31	2	30.062	0 48.15	18.359
	Venus, N. P. - -	22.9	36.2	50.0	12 36.36	2	45.274		
	30566, Lalande - -	10.3	24.2	38.0	13 24.16	2	29.501	0 47.80	15.773
	Venus, S. P. - -	36.0	49.7	3.9	15 49.86	2	47.522		
	30556, Lalande - -		38.2	51.7	16 38.36	2	29.086	0 48.50	18.436
	Venus, N. P. - -	52.3	6.5	20.5	17 6.43	2	44.479		
	30556, Lalande - -	39.2	53.1	6.8	18 53.03	2	28.548	0 46.60	15.931
	Venus, S. P. - -	36.0	49.8	4.1	21 49.96	2	46.140		
	30556, Lalande - -		36.3	50.5	22 36.41	2	27.552	0 46.45	18.588
	Venus, N. P. - -	2.1	16.0	29.5	24 15.86	2	42.897		
	30556, Lalande - -		2.0	15.4	25 1.81	2	26.651	— 0 45.95	— 16.246

RESULTS.

Corr. Chron. (m. s.) + 0 35.56

	α (h. m. s.)	δ (° ′ ″)
30556, Lalande,	16 40 56.10	—26 28 27.61

Venus, N. P. —30556, Lalande.

M. T. h. m. s.		Δ α m. s.		Δ δ ′ ″
6 15 43.33		— 0 47.55		— 4 03.97
	Δ t	.13		
	Δ ρ	— .08	—	1.64
	p	+ .67	+	11.62
	Semi-d.	+ 1.06	—	15.85

Venus, S. P.—30556, Lalande.

M. T. h. m. s.		m. s.		′ ″
6 16 29.88		— 0 47.70		— 4 43.76
	Δ t	.13		
	Δ ρ	— .09	—	1.91
	p	+ .67	+	11.52
	Semi-d.	+ 1.06	+	15.85

Planet undefined.—A. 5.

Therm. Int. 59°.2
Ex. 50.5

DATE.	OBJECTS.	A.	B.	C.	Mean.	Mic.		Δ α	Δ mic.
Oct. 21	Venus, S. P. - -	41.3	55.0	8.7	5 54 55.00	2	37.338		
	A. Z., 214,54 - -		26.0	40.0	56 26.15	2	43.950	— 1 31.15	+ 6.612
	A. Z., 214,56 - -		19.1	32.7	57 19.05	3	30.376		
	°Venus, N. P. - -	33.0	46.4	0.3	59 6.56	2	34.670		
	A. Z., 214,54 - -	23.3	37.0	51.0	6 0 37.10	2	43.300	1 30.54	8.630
	A. Z., 214,56 - -	16.0	29.3	43.3	1 29.53	3	29.722		
	Venus, S. P. - -	49.1	2.7	16.2	4 2.67	2	36.014		
	A. Z., 214,54 - -	18.2	32.4	46.0	5 32.20	2	42.452	1 29.53	6.438
	A. Z., 214,56 - -		25.5	39.0	6 25.25	3	28.902		
	Venus, N. P. - -	19.2	32.8	47.2	8 33.06	2	32.960		
	A. Z., 214,54 - -	49.0	3.0	16.2	10 2.73	2	41.791	1 29.67	8.831
	A. Z., 214,56 - -	42.1	55.8	9.2	11 55.70	3	27.950		
	Venus, S. P. - -	29.1	43.2	57.2	12 43.16	2	33.753		
	A. Z , 214,54 - -	58.0	12.5	26.6	14 12.16	2	39.771	1 29.00	6.018
	A. Z., 214,56 - -	51.3	5.0	19.1	15 5.13	3	27.140		
	Venus, N. P. - -	28.2	42.1	56.2	16 42.16	2	31.500		
	A. Z., 214,54 - -	55.9	10.0	24.5	18 10.13	2	40.000	1 27.97	8.500
	A. Z., 214,56 - -	49.6	3.2	17.0	19 3.26	3	26.296		
	Venus, S. P. - -	10.3	24.2	38.1	21 24.20	2	32.841		
	A. Z., 214,54 - -		51.0	5.0	22 51.05	2	38.565	1 26.85	5.724
	A. Z , 214,56 - -		45.0	58.0	23 44.55	3	24.918		
	Venus, N. P. - -	0.4	14.1	28.2	26 14.23	2	29.000		
	A. Z., 214,54 - -	27.1	41.2	55.0	27 41.10	2	36.915	— 1 26.87	+ 7.915
	A. Z., 214,56 - -		33.4	47.5	28 33.45	3	23.472		

RESULTS.

Corr. Chron. (m. s.) + 0 29.46

	α (h. m. s.)	δ (° ′ ″)
A. Z., 214,54	16 49 12.61	—26 52 20.80

Venus, S. P.—A. Z., 214,54,

M. T. h. m. s.		Δ α m. s.		Δ δ ′ ″
6 10 14.85		— 1 29.13	+	1 34.26
	Δ t	— .24		
	Δ ρ	+ .03		.59
	p	.69		12.09
	Semi-d.	+ 1.11	+	16.59

Venus, N. P.—A. Z., 214,54.

M. T. h. m. s.		m. s.		′ ″
6 13 8.46		— 1 28.76	+	2 10.18
	Δ t	— .24		
	Δ ρ	+ .04		.81
	p	.70	+	12.07
	Semi-d.	+ 1.11	—	16.59

Stars dim, and planet undefined and blurred.—A. 6.

Bar. 29.90 In. Therm. Att. 72°.0
Int. 55.5
Ex. 49.5

° The recorded reading here is corrected in the mean, it being evidently 40 seconds too large.

VENUS.

TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
50.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
22	Venus, N. P. - -	22.9	36.9	50.9	5 44 36.90	2	41.029		
	A. Z., 388, 85 - -			26.5	45 12.58	2	52.419	— 0 35.68	+ 11.390
	Venus, S. P. - -	22.1	35.9	49.8	48 35.93	2	43.010		
	A. Z., 388, 85 - -			25.0	49 11.08	2	51.985	0 35.15	8.975
	Venus, N. P. - -	26.3		54.1	51 40.20	2	40.391		
	A. Z., 388, 85 - -			29.1	52 15.18	2	51.582	0 34.98	11.191
	Venus, S. P. - -	59.5	12.9	27.5	54 13.30	2	42.311		
	A. Z., 388, 85 - -			3.0	54 49.08	2	51.497	0 35.78	9.096
	Venus, N. P. - -	36.1	49.5	4.0	57 49.87	2	39.629		
	A. Z., 388, 85 - -		23.1	37.2	58 23.27	2	50.779	0 33.40	11.150
	Venus, S. P. - -	45.2	59.0	12.9	59 59.03	2	41.619		
	A. Z., 388, 85 - -			45.5	6 0 31.58	2	50.499	0 32.55	8.880
	Venus, N. P. - -	12.5	26.2	39.7	6 2 26.13	2	39.104		
	A. Z., 388, 85 - -		59.1	12.4	2 58.93	2	50.058	0 32.80	10.954
	Venus, S. P. - -	12.0	26.1	39.7	4 25.93	2	41.052		
	A. Z., 388, 85 - -			12.0	4 58.08	2	49.808	0 32.15	8.756
	Venus, N. P. - -	24.0	37.9	52.0	6 37.97	2	38.300		
	A. Z., 388, 85 - -			24.0	7 10.08	2	49.289	— 0 32.11	+ 11.989
28	Venus, S. P. - -	4.1	18.0	32.1	5 50 18.07	2	35.835		
	A Z, 388, 115 - -		46.1	0.0	50 46.07	1	42.298	— 0 28.00	— 23.484
	Venus, N. P. - -	22.0	36.1	49.5	53 35.87	2	33.083		
	A. Z., 388, 115 - -		4.5	18.1	54 4.37	1	42.039	0 28.50	20.991
	Venus, S. P. - -	15.9	30.0		56 29.96	2	35.178		
	A. Z., 388, 115 - -			2.5	56 48.71	1	41.652	0 28.75	23.473
	Venus, N. P. - -	32.9	47.0	0.9	58 46.93	2	32.469		
	A. Z., 388, 115 - -			28.2	59 14.41	1	41.310	0 27.48	21.106
	Venus, S. P. - -	6.2	20.0	34.0	6 1 20.07	2	34.340		
	A. Z, 388, 115 - -			1.0	1 47.21	1	40.962	0 27.14	23.325
	Venus, N. P. - -	52.0	6.0	19.2	6 3 5.73	2	31.678		
	A. Z., 388, 115 - -			46.5	3 32.71	1	40.419	— 0 26.98	— 21.206

RESULTS.

22.

		m. s.
Corr. Chron.		+ 0 29.38

	α	δ
	h. m. s.	° ′ ″
A. Z., 388, 85,	16 52 0.01	—27 1 13.72

Venus, S. P.—A. Z., 386, 85,

M. T.		Δ α	Δ δ
h. m. s.		m. s.	′ ″
5 57 39.10		— 0 33.91	+ 2 17.26
	Δt	— .09	
	Δρ	+ .02	.40
	p	.66	12.38
	Semi-d.	+ 1.13	+ 16.98

Venus, N. P.—A. Z., 388, 85.

M. T.			
h m. s.		m. s.	′ ″
5 57 7.59		— 0 33.79	+ 2 53.92
	Δt	— .09	
	Δρ	+ .03	.51
	p	.66	+ 12.38
	Semi-d.	+ 1.13	— 16.98

The night tolerable. The temperatures on the outside and inside of the dome nearly equal, being 62° and 63°; still the disc of the planet tremulous, and not measurable within 10 seconds.—A. 7.

In.		°
Bar. 29.964	Therm. Att.	75.0
	Int.	63.0
	Ex.	62.0

28.

	s.
Corr. Chron.	+ 23.98

	α	δ
	h. m. s.	° ′ ″
A. Z., 388, 115,	17 13 23.09	—27 31 20.44

Venus, S. P.—A. Z., 388, 115,

M. T.		Δ α	Δ δ
h. m. s.		m. s.	′ ″
5 56 51.31		— 0 27.96	— 6 0.11
	Δt	.08	
	Δρ	— .12	— 2.11
	p	+ .74	+ 13.57
	Semi-d.	+ 1.23	+ 19.35

Venus, N. P.—A. Z., 388, 115.

M. T.			
h. m. s.		m. s.	′ ″
5 58 53.49		— 0 27.65	— 5 24.35
	Δt	.68	
	Δρ	— .09	— 1.90
	p	+ .75	+ 13.57
	Semi-d.	+ 1.23	— 19.35

Night clear and serene. Observations unsatisfactory.—A. 8.

In.		°
Bar. 30.100	Therm. Att.	70.0
	Int.	67.5
	Ex.	55.0

VENUS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
1850. Oct. 29	Venus, S. P. - - -		51.0		5 54 50.82	3	33.662		
	(° 8) - - - - -		15.0		55 14.82	1	37.391	— 0 24.00	+ 56.360
	Venus, S. P. - - -	7.0	21.0		57 20.82	3	33.552		
	(° 8) - - - - -			59.0	57 45.16	1	36.822	0 24.34	56.819
	Venus, N. P. - - -	48.2	2.0		59 1.82	3	30.488		
	(° 8) - - - - -			40.0	59 26.16	1	36.502	— 0 24.34	+ 54.075
	(° 9) - - - - -	1.5	16.2	29.7	6 2 15.80	2	46.030	+ 0 57.13	— 15.906
	Venus, S. P. - - -	59.0	12.9	26.9	3 12.93	3	31.989		
	(° 9) - - - - -	45.0	59.0	12.5	4 58.83	2	45.469	+ 0 57.95	— 13.428
	Venus, N. P. - - -	42.9			5 56.78	3	28.950		
Nov. 1	Venus, S. P. - - -	47.1	1.0	15.2	5 28 1.10	2	33.199		
	La Caille, 7371 - -	33.1	47.0	1.3	30 47.13	2	51.562	— 2 46.03	+ 18.363
	Venus, N. P. - - -	38.3	52.5	7.0	32 52.60	2	30.160		
	La Caille, 7371 - -	23.5	38.3	52.1	35 37.96	2	50.945	2 45.36	20.785
	Venus, S. P. - - -	17.2	31.0	45.0	40 31.06	2	32.042		
	La Caille, 7371 - -	1.3	15.5	29.7	43 15.50	2	50.375	2 44.44	18.333
	Venus, N. P. - - -	56.9		25.0	46 10.95	2	28.975		
	La Caille, 7371 - 1	40.7	55.0	8.9	48 54.53	2	49.862	2 43.58	20.887
	Venus, S. P. - - -	24.2	37.9	52.2	50 38.10	2	30.649		
	La Caille, 7371 - -		21.7	35.5	53 21.65	2	48.838	2 43.55	18.189
	Venus, N. P. - - -	48.7		16.8	55 2.75	2	27.247		
	La Caille, 7371 - -	31.9	45.9	59.7	57 45.83	2	48.077	2 43.08	20.830
	Venus, S. P. - - -	13.0	27.1	41.0	6 0 27.03	1	58.858		
	La Caille, 7371 - -	55.0	9.0	23.0	3 9.00	2	46.937	2 41.97	18.221
	Venus, N. P. - - -	13.1	27.1	41.0	5 27.06	1	55.219		
	La Caille, 7371 - 1	55.0	19.0	23.0	8 9.00	2	45.640	— 2 41.94	+ 20.563
Nov. 2	7371, La Caille - -					2	39.061		+ 8.669
	Venus, S. - - -		20.0		5 25 20.00	2	30.392		
	7371, La Caille - -					2	39.000		11.621
	Venus, N. - - -		40.0		26 40.00	2	27.379		
	7371, La Caille - -					2	38.839		+ 9.068
	Venus, S. - - -		20.0		27 20.00	2	29.771		

RESULTS.

Oct. 29:

A. 8 Bar. 30.210 in. Ther. Att. 70°. Int. 55. Ex. 49.

Observations unsatisfactory.

Corr. Chron. + 0 21.72 (m. s.)

Nov. 1:

	α (h. m. s.)	δ (° ′ ″)
7371, La Caille,	17 28 47.97	—27 56 55.09

Venus, S.P.—7371, La Caille,

M. T. (h. m. s.)		Δ α (m. s.)	Δ δ (′ ″)
5 45 16.04		— 2 43.99	+ 4 40.92
	Δ t	— .45	
	Δ ρ	+ .07	+ 1.37
	p	+ .76	+ 14.58
	Semi-d.	+ 1.31	+ 20.54

Venus, N.P.—7371, La Caille.

M. T. (h. m. s.)		(m. s.)	(′ ″)
5 50 15.06		— 2 43.49	+ 5 19.21
	Δ t	— .45	
	Δ ρ	+ .08	+ 1.57
	p	+ .76	+ 14.42
	Semi-d.	+ 1.31	— 20.54

Brown hase, A. 8. Bar. 30.210 in. Ther. Att. 70°. Int. 62. Ex. 59.

(Continued.)

VENUS.

IE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δ α	Δ mic.	RESULTS.
50.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	
2	7371, La Caille - -					2 38.745		+ 11.584	
	Venus, N. - - -		10.0		5 29 10.00	2 27.161			
	7371, La Caille - -	13.2	27.0	41.3	30 27.16		+ 0 20.04		
	Venus, P. - - -	33.2	47.2	1.2	30 47.20				
	7371, La Caille - -	53.5	7.7	21.5	32 7.56		0 20.47		
	Venus, P. - - -	14.3	27.9	41.9	32 28.03				
	7371, La Caille - -	13.2	27.2	41.4	33 27.26		0 20.50		Corr. Chron. m. s. + 0 20.57
	Venus, P. - - -	33.7	47.9	1.7	34 47.76				
	7371, La Caille - -					2 38.051		9.229	α δ h. m. s. ° ′ ″ 7371, La Caille, 17 28 47.96 —27 56 55.05
	Venus, S. - - -		52.0		38 52.00	2 28.822			
	7371, La Caille - -					2 38.075		11.853	Venus, P—7371, La Caille, Δ α M. T. h. m. s. m. s. 5 44 50.88 + 0 22.03 Δ t + .06 Δ ρ — .04 p + .77 Semi-d. + 1.33
	Venus, N. - - -		5.0		40 5.00	2 26.222			
	7371, La Caille - -					2 37.629		9.008	
	Venus, S. - - -		42.0		41 42.00	2 28.621			
	7371, La Caille - -					2 37.436		11.669	
	Venus, N. - - -		27.0		42 27.00	2 25.767			
	7371, La Caille - -					2 36.935		8.906	Venus, S.—7371, La Caille, Δ δ M. T. h. m. s. ′ ″ 5 41 49.95 + 2 18.05 Δ ρ .56 p 14.81 Semi-d. + 20.93
	Venus, S. - - -		3.0		46 3.00	2 28.029			
	7371, La Caille - -					2 36.872		11.591	
	Venus, N. - - -		7.0		47 7.00	2 25.281			
	7371, La Caille - -					2 36.572		9.071	
	Venus, S. - - -		40.0		48 40.00	2 27.501			
	7371, La Caille - -					2 36.412		11.652	Venus, N.—7371, La Caille. M. T. h. m. s. 5 44 16.27 + 2 58.40 Δ ρ .84 p + 14.80 Semi-d. — 20.93
	Venus, N. - - -		6.0		50 6.00	2 24.760			
	7371, La Caille - -	57.1	11.5	24.9	52 11.16		0 23.54		
	Venus, P. - - -	20.8	34.7	48.6	52 34.70				
	7371, La Caille - -	29.8	44.6	57.9	53 44.10		0 23.10		
	Venus, P. - - -	53.1	7.3	21.2	54 7.20				
	7371, La Caille - -					2 35.483		8.985	A. 8. In. ° Bar. 30.225. Ther. At. 69 Int. 59.8 Ex. 61
	Venus, S. - - -		41.0		55 41.00	2 26.498			
	7371, La Caille - -					2 35.199		11.500	
	Venus, N. - - -		59.0		56 59.00	2 23.699			
	7371, La Caille - -					2 34.887		8.916	
	Venus, S. - - -		17.0		58 17.00	2 25.971			
	7371, La Caille - -					2 34.585		+ 11.364	
	Venus, N. - - -		52.0		58 52.00	2 23.221			
	7371, La Caille - -	38.5	52.7	6.2	6 1 52.47		+ 0 24.53		
	Venus, P. - - -	2.9	17.1	31.0	2 17.00				
4	Venus - - - -	--	--	--	- - - - -	- - -	- - -	- - -	Before the instrument could be pointed at the planet the sky became hazy.
5	(° 9.5) - - - -	56.0		24.0	5 49 10.00	2 36.728	+ 1 52.10	+ 4.630	Planet wavy and uncertain. A. 8.
	Venus, S. P. - -	48.1	2.0	16.2	51 2.10	2 32.098			
	(° 9.5) - - - -	50.2		19.0	53 4.60	2 36.720	+ 1 52.67	+ 7.081	
	Venus, N. P. - -	43.1	57.2	11.5	54 57.27	2 29.639			
	(°) - - - - -		52.5	6.5	6 0 52.42	2 40.642			

VENUS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
1850.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
Nov. 9	6063, B. A. C. - -	38.1	52.2	6.0	5 24 52.10	3	28.106	+ 1 7.85	+ 18.764
	Venus, S. P. - -	45.8		14.1	25 59.95	2	39.102		
	6063, B. A. C. - -	2.4	15.8	30.4	29 16.20	3	26.778	1 8.15	21.736
	Venus, N. P. - -	10.7		38.0	30 24.35	2	34.924		
	6063, B. A. C. - -	43.3	56.9	11.0	35 57.06	3	26.817	1 8.14	18.665
	Venus, S. P. - -	50.9	5.5	19.2	37 5.20	2	38.022		
	6063, B. A. C. - -	39.2	53.5	8.1	38 53.60	3	26.358	1 8.57	21.766
	Venus, N. P. - -	48.2	2.3	16.0	40 2.17	2	34.462		
	6063, B. A. C. - -	12.0	26.1	39.5	43 25.86	3	25.589	1 9.41	18.669
	Venus, S. P. - -	21.3	35.5	49.0	44 35.27	2	36.790		
	6063, B. A. C. - -	46.5	0.4	14.5	46 0.47	3	25.192	+ 1 9.66	+ 21.890
	Venus, N. P. - -	56.2	10.2	24.0	47 10.13	2	33.172		

RESULTS. (Nov. 9)

Corr. Chron. + 0 m. 14.51 s.

	α h. m. s.	δ ° ′ ″
6063, B. A. C.	17 47 15.72	—28 2 2.61

Venus, S. P.—6063, B. A. C.

M. T. h. m. s.		Δ α m. s.	Δ δ ′ ″
5 36 7.98		+ 1 8.47	+ 4 47.98
	Δ t	.19	
	Δ ρ	.07	1.42
	p	.95	18.16
	Semi-d.	+ 1.36	+ 24.09

Venus, N. P.—6063, B. A. C.

M. T. h. m. s.		m. s.	′ ″
5 39 26.73		+ 1 8.79	+ 5 35.06
	Δ t	.19	
	Δ ρ	.08	1.66
	p	1.02	+ 17.96
	Semi-d.	+ 1.36	— 24.09

Planet deformed and tremulous. A. 7.

Bar. 30.21 In. Ther. At. 74°, Int. 54, Ex. 47

DATE.	OBJECTS.	A.	B.	C.	Mean.	w.	revs.	Δ α	Δ mic.
Nov. 10	6063, B. A. C. - -	39.6	53.1	7.5	5 1 53.40	3	31.041	+ 3 25.70	+ 25.722
	Venus, S. P. - -	5.2	19.0	33.1	5 19.10	2	35.189		
	6063, B. A. C. - -	56.0	9.7	24.1	7 9.93	3	30.690	3 27.00	27.765
	Venus, N. P. - -	22.9	37.0	50.9	10 36.93	2	32.795		
	6063, B. A. C. - -	25.0	39.2	55.7	13 39.96	3	30.068	3 26.04	24.939
	Venus, S. P. - -	52.1	6.0	19.9	17 6.00	2	34.999		
	6063, B. A. C. - -	49.2		18.2	19 3.70	3	29.579	3 28.26	27.880
	Venus, N. P. - -	18.0	31.9	46.0	22 31.96	2	31.569		
	6063, B. A. C. - -	12.1	26.2	40.3	30 26.20	3	28.537	+ 3 29.70	+ 25.079
	Venus, S. P. - -	41.9	55.8	10.0	33 55.90	2	33.328		
	(°) - - - - -	23.0	37.0	50.8	35 36.93	1	49.238		
	Venus, N. P. - -	2.0	16.2	31.0	37 16.40	2	29.982		
	(°) - - - - -	43.1	57.2	11.0	38 57.10	1	48.710		
	(° 7.8) - - - -		59.5	14.5	40 0.00	1	37.809	— 2 43.60	— 22.392
	Venus, S. P. - -	28.9	42.7	56.7	41 42.76	2	32.050		
	(°) - - - - -	8.5	22.1	36.0	43 22.20	1	48.116		
	(° 7.8) - - - -		25.0	39.0	44 25.15	1	37.374	2 42.39	24.895
	Venus, N. P. - -	12.2		40.0	46 26.10	2	28.269		
	(°) - - - - -	52.0	5.0	19.2	48 5.40	1	47.245		
	(° 7.8) - - - -		8.7	22.2	49 9.15	1	36.430	— 2 43.05	— 22.058

RESULTS. (Nov. 10)

Corr. Chron. + 0 m. 13.07 s.

	α h. m. s.	δ ° ′ ″
6063, B. A. C.	17 47 15.71	—28 2 2.58

Venus, S. P.—6063, B. A. C.

M. T. h. m. s.		Δ α m. s.	Δ δ ′ ″
5 19 0.07		+ 3 27.16	+ 6 28.09
	Δ t	.56	
	Δ ρ	.09	1.84
	p	.81	17.20
	Semi-d.	+ 1.51	+ 24.48

Venus, N. P.—6063, B. A. C.

M. T. h. m. s.		m. s.	′ ″
5 16 47.51		+ 3 27.63	+ 7 7.66
	Δ t	.56	
	Δ ρ	.09	1.93
	p	.81	+ 17.20
	Semi-d.	+ 1.51	— 24.48

The four first comparisons taken without illumination are good; the rest unsatisfactory. A. 9.

Bar. 30.15 In. Ther. At. 71°, Ex. 41

VENUS.

[DA]TE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.		Planet—Star. Δ α	Δ mic.
[18]50.		s.	s.	s.	h. m. s.	w.	revs.	m. s.	revs.
13	A. Z, 233, 38 - -	56.2	10.2	23.9	5 20 10.10	2	43.569	+ 1 7.90	+ 8.191
	Venus, S. P. - - -		18.0	31.9	21 18.00	2	35.378		
	A. Z., 233, 38 - -	29.1	43.2	57.0	22 43.10	2	43.088	1 8.23	10.935
	Venus, N. P. - - -	37.2	50.9	5.9	23 51.33	2	32.153		
	A. Z., 233, 38 - -	44.9	59.3	13.7	26 59.30	2	42.960	1 8.10	8.212
	Venus, S. P. - - -	53.1	7.2	21.9	28 7.40	2	34.748		
	A. Z., 233, 38 - -	54.7	8.4	22.8	31 8.63	2	42.400	1 8.33	11.209
	Venus, N. P. - - -	3.0	17.0	30.9	32 16.96	2	31.191		
	A. Z., 233, 38 - -	41.4	55.3	9.6	33 55.43	2	41.975	1 8.53	8.165
	Venus, S. P. - - -	50.0	3.9	18.0	35 3.96	2	33.810		
	A. Z., 233, 38 - -	20.0	34.2	48.6	36 34.26	2	41.548	1 8.77	11.212
	Venus, N. P. - - -	29.2	43.0	56.9	37 43.03	2	30.336		
	A. Z., 233, 38 - -	23.0	37.2	51.4	39 37.20	2	41.088	1 9.10	8.370
	Venus, S. P. - - -	32.5	46.1	0.3	40 46.30	2	32.718		
	A. Z, 233, 38 - -	51.2	6.7	19.0	42 5.63	2	40.502	+ 1 8.20	+ 11.140
	Venus, N. P. - - -	59.5	14.1	27.9	43 13.83	2	29.358		
14	Venus, S. P. - - -	27.5	41.6	56.0	5 12 41.70	2	30.990		
	A. Z., 223, 46 - -	24.1	38.3	52.1	13 38.17	2	32.599	— 0 56.47	+ 1.609
	Venus, N. P. - - -	52.0	5.9	20.1	15 6.00	2	27.800		
	A. Z., 223, 46 - -	48.9	3.0	17.0	16 2.96	2	32.300	0 56.96	4.500
	Venus, S. P. - - -	24.1	38.3	52.0	17 38.13	2	30.388		
	A. Z., 223, 46 - -	21.0	34.7	49.0	18 34.90	2	32.080	0 56.77	1.692
	Venus, N. P. - - -	27.0	40.9	55.0	19 40.96	2	27.200		
	A. Z, 223, 46 - -	24.1	37.0	52.0	20 37.70	2	31.850	0 56.74	4.650
	Venus, S. P. - - -	23.1	36.9	51.0	29 37.00	2	28.931		
	A. Z, 223, 46 - -	19.1	33.0	47.9	30 33.33	2	30.942	0 56.33	2.011
	Venus, N. P. - - -	53.0	6.2	19.7	32 6.30	2	25.631		
	A. Z., 223, 46 - -	48.2	2.5	16.9	33 2.53	2	30.542	0 56.23	4.891
	Venus, S. P. - - -	49.7	3.2	17.0	36 3.30	2	28.201		
	A. Z., 223, 46 - -		59.3	13.3	36 59.50	2	30.149	0 56.20	1.948
	Venus, N. P. - - -	20.0	34.0	48.2	5 37 34.06	2	24.695		
	A. Z., 223, 46 - -	16.1	29.7	43.6	38 29.80	2	29.688	— 0 55.74	+ 4.993

RESULTS.

13.

Corr. Chron. + 0 12.53 s.

	α	δ
	h. m. s.	° ′ ″
A. Z., 233, 38,	17 55 55.12	—27 50 5.53

Venus, S. P.—A. Z., 233, 38,

M. T.		Δ α	Δ δ
h. m. s.		m. s.	′ ″
5 31 31.44		+ 1 8.41	+ 2 6.57
	Δ t	.19	
	Δ ρ	.03	.68
	p	.93	17.48
	Semi-d.	+ 1.58	+ 25.67

Venus, N. P.—A. Z., 233, 38.

M. T.		Δ α	Δ δ
h. m. s.		m. s.	′ ″
5 34 28.82		+ 1 8.39	+ 2 50.99
	Δ t	.19	
	Δ ρ	.04	.91
	p	.94	+ 17.48
	Semi-d.	+ 1.58	— 25.67

The two first comparisons made without illumination; the night clear and serene. All the circumstances favorable, except the inequality of the exterior and interior temperatures; which could not have been reduced, all the doors and windows of the dome having been kept open during the whole day.—A. 8.

Bar. 30.04 In. Therm. At. 71° Int. 55 Ex. 45

14.

Corr. Chron. + 0 12.10 m. s.

	α	δ
	h. m. s.	° ′ ″
A. Z., 233, 46,	17 59 51.27	—27 44 58.03

Venus, S. P.—A. Z., 233, 46,

M. T.		Δ α	Δ δ
h. m. s.		m. s.	′ ″
5 24 12.13		— 0 56.44	+ 0 27.94
	Δ t	— .15	
	Δ ρ	+ .01	.13
	p	.92	18.00
	Semi-d.	+ 1.61	+ 26.06

Venus, N. P—A. Z., 233, 46.

M. T.		Δ α	Δ δ
h. m. s.		m. s.	′ ″
5 26 18.83		— 0 56.42	+ 1 13.15
	Δ t	— .15	
	Δ ρ	+ .02	.34
	p	.93	+ 18.00
	Semi-d.	+ 1.61	— 26.06

A. 9.

Bar. 30.08 In. Therm. At. 75° Int. 57 Ex. 52

VENUS.

DATE.	OBJECTS.	Observed times of transit. A.	B.	C.	Mean.	Mic.	Planet—Star. Δα	Δ mic.
		s.	s.	s.	h. m. s.	w. rev.	m. s.	rev.
1850. Nov. 18	Venus - - - - -	--	--	--	- - -	- - -	- - -	- - -
Nov. 21	Venus, S. P. - -	33.9	48.0	1.9	4 48 47.93	2 35.480		
	6194, B. A. C. - -		41.2	55.1	49 41.13	2 28.091	— 0 53.20	— 7.389
	Venus, N. P. - -	39.6	53.9	7.5	50 53.67	2 32.838		
	6194, B. A. C. - -		45.8	0.1	51 45.92	2 28.014	0 52.25	4.824
	Venus, S. P. - -	53.2	7.1	21.0	53 7.10	2 35.020		
	6194, B. A. C. - -	46.0	0.1	14.0	54 0.03	2 27.633	0 52.93	7.387
	Venus, N. P. - -	2.0	16.1	29.8	56 15.96	2 32.239		
	6194, B. A. C. - -		8.7	22.7	57 8.71	2 27.415	0 52.75	4.824
	Venus, S. P. - -	37.2	51.0	4.9	59 51.36	2 35.101		
	6194, B. A. C. - -	29.2	43.5	57.6	5 0 43.43	2 27.080	0 52.07	8.021
	Venus, N. P. - -	45.9	59.5	13.9	2 59.76	2 31.427		
	6194, B. A. C. - -	38.2	52.3	6.0	3 52.16	2 26.788	0 52.40	4.639
	Venus, S. P. - -	54.9	8.7	23.0	4 8.86	2 34.534		
	6194, B. A. C. - -	47.8	1.5	15.7	5 1.66	2 26.550	0 52.80	7.984
	Venus, N. P. - -	0.9	14.8	28.4	6 14.70	2 30.901		
	6194, B. A. C. - -	53.3	7.1	20.0	7 6.80	2 26.216	0 52.10	4.685
	Venus, S. P. - -	57.5	11.2	25.8	10 11.50	2 33.799		
	6194, B. A. C. - -		3.7	17.9	11 3.80	2 25.992	0 52.30	7.807
	Venus, N. P. - -	4.9	18.0	32.5	11 18.47	2 30.208		
	6194, B. A. C. - -		10.8	24.2	12 10.72	2 25.801	0 52.25	4.407
	Venus, S. P. - -	18.7	32.7	46.9	13 32.76	2 33.249		
	6194, B. A. C. - -		24.3	38.5	14 24.26	2 25.449	0 51.50	7.800
	Venus, N. P. - -	19.4	33.0	47.5	16 33.30	2 29.309		
	6194, B. A. C. - -		25.2	39.1	17 25.20	2 25.018	0 51.90	4.291
	Venus, S. P. - -	11.9	25.9	39.2	19 25.67	2 32.282°		
	6194, B. A. C. - -	4.2	18.3	32.2	20 18.23	2 24.551	0 52.56	7.731
	Venus, N. P. - -	21.2	35.0	49.2	21 35.13	2 28.498		
	6194, B. A. C. - -		27.1	41.2	22 27.18	2 24.242	0 52.05	4.256
	Venus, S. P. - -	58.1	11.9	36.1	24 12.03	2 31.330		
	6194, B. A. C. - -	49.3	3.3	17.0	25 3.20	2 23.639	0 51.17	7.691
	Venus, N. P. - -	20.0	34.2	48.0	26 34.06	2 27.342		
	6194, B. A. C. - -		24.9	39.3	27 25.06	2 23.234	0 51.00	4.108
	Venus, S. P. - -	20.0	34.1	48.0	31 34.03	2 29.892		
	6194, B. A. C. - -	11.9	25.2	39.5	32 25.53	2 22.432	0 56.50	7.460
	Venus, N P. - -	44.8	59.1	12.5	34 58.80	2 25.845		
	6194, B. A. C. - -		50.2	4.2	35 50.20	2 22.049	0 51.40	3.796
	Venus, S. P. - -	52.1	6.2	20.0	38 6.10	2 27.970		
	6194, B. A. C. - -	43.2	57.1	11.4	39 57.23	2 20.571	0 51.13	7.399
	Venus, N. P. - -	21.0	35.0	48.9	40 34.96	2 23.642		
	6194, B. A C. - -		26.0	40.2	41 26.11	2 19.841	0 51.15	3.801
	Venus, S. P. - -	52.9	7.1	21.0	5 43 7.00	2 26.311		
	6194, B. A. C. - -		57 2	11.2	43 57.15	2 19.284	— 0 50.15	— 7.027

RESULTS.

Nov. 18. A. 4.—The planet deformed and tremulous; observations impossible.

Nov. 21.

Corr. Chron. + 0 9.24 s.

	α (h. m. s.)	δ (° ′ ″)
6194, B. A. C.	18 8 40.92	—27 5 22.96

Venus, S. P.—6194, B. A. C.

M. T. (h. m. s.)		Δα (m. s.)	Δδ (′ ″)
5 15 15.09		— 0 51.91	— 1 56.96
	Δt	— .14	
	$\Delta \rho$	+ .03	+ .56
	p	1.07	19.89
	Semi-d.	+ 1.81	+ 27.32

Venus, N. P.—6194, B. A. C.

M. T. (h. m. s.)		m. s.	′ ″
5 14 57.12		— 0 51.92	— 1 7.07
	Δt	— .14	
	$\Delta \rho$	+ .02	+ .32
	p	1.07	+ 19.89
	Semi-d.	+ 1.81	— 27.32

Night clear and serene.—A. 8.

Bar. 29.99 In.

Therm. At. 74.0°
Int. 46.8
Ex. 41.0

° Recorded 31.282.

VENUS.

DATE.	OBJECTS.	Observed times of transit.				Mic.	Planet—Star.		RESULTS.
		A.	B.	C.	Mean.		Δ α	Δ mic.	
1850.		s.	s.	s.	h. m. s.	w. revs.	m. s.	revs.	In. °
Nov. 24	Venus, N. P. - -	59. 3	13. 3	27. 6	5 2 13. 40	2 37. 260			
	(°) - - - -	9. 0	23. 2	37. 0	11 23. 06	2 30. 700	— 9 9. 60	— 6. 560	A. 9. Bar. 30. 050 Therm. At. 74. 0
									Int. 46. 0
	Venus, S. P. - -	35. 0	48. 7	3. 0	5 15 48. 90	2 31. 658			Ex. 40. 5
	(°) - - - -	55. 5	9. 0	23. 0	24 9. 16	2 29. 162	— 8 20. 26	— 2. 496	The planet wavy and uncertain; lost in clouds.
Nov. 30	Venus - - - -	--	--	--	- - -	- - -	- - -	- - -	Observations were attempted, but before any stars showed themselves the planet became deformed and flaming. It is evident, from the observations of the 24th and of to night, that at the altitude which Venus can be observed at present it will be impossible to make any comparisons available for the determination of parallax. From November 30 to December 7, an almost uninterrupted rain.

FOR THE VALUE OF A REVOLUTION OF THE MICROMETER SCREW.

Feb. 5. 20 Tauri — η Tauri.

	Hour circle.	Mic.	Δ mic.
	h. m.		
20 Tauri	2 44.3	1 38.708	
η Tauri		3 39.108	+ 0.400
	2 48.0	1 38.845	
		3 39.118	0.266
	2 51.4	1 38.931	
		3 39.149	0.218
	54.3	1 38.940	
		3 39.055	0.115
	57.0	1 38.946	
		3 39.075	0.129
	59.3	1 38.912	
		3 39.155	0.243
	3 2.1	1 38.982	
		3 39.291	0.309
	6.1	1 38.740	
		3 39.247	0.507
	9.3	1 38.930	
		3 39.100	0.170
	12.0	1 39.023	
		3 39.292	0.269
	17.7	1 39.058	
		3 39.250	0.192
	20.3	1 39.210	
		3 39.306	0.096
	23.6	1 39.120	
		3 39.259	0.139
	26.3	1 39.151	
		3 39.357	0.206
	28.7	1 39.088	
		3 39.342	0.254
	31.0	1 39.130	
		3 39.330	0.200
	33.8	1 39.171	
		3 39.328	+ 0.157

	h. m.	r.
Hour angle	3 9.2 E	+ 0.222
Interval	3 — 1.	60.080
		60.302

		′ ″
Δδ 1840	- - - -	15 26.209
Δp	- - +	1.314
Δm	- - +	.060
Δρ	- - —	.319
Δδ 1850, Feb. 15,		27.264

Rev. = 15″.3770.

March 8. 20 Tauri — η Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
20 Tauri	5 23.0	1 41.195	
η Tauri		3 41.410	+ 0.215
	5 26.0	1 41.191	
		3 41.423	0.232
	29.0	1 41.210	
		3 41.399	0.189
	31.0	1 41.189	
		3 41.369	0.180
	33.5	1 41.229	
		3 41.419	0.190
	36.0	1 41.210	
		3 41.441	0.231
	41.0	1 41.269	
		3 41.500	0.231
	43.3	1 41.288	
		3 41.510	0.222
	46.0	1 41.359	
		3 41.540	0.181
	48.7	1 41.368	
		3 41.511	0.143
	51.0	1 41.318	
		3 41.628	0.310
	53.5	1 41.290	
		3 41.475	0.185
	56.0	1 41.253	
		3 41.518	0.265
	58.5	1 41.402	
		3 41.629	0.227
	6 01.0	1 41.311	
		3 41.620	0.309
	3.0	1 41.258	
		3 41.491	+ 0.233

	h. m.	δ
M. Sid. T.	5 43.7	

	h. m.	r.
Hour angle	2 5.1 E.	+ 0.221
Interval	3 — 1	60.080
		60.301

		′ ″
Δδ 1840	- - - - -	15 26.209
Δp	- - - +	1.271
Δm	- - - +	0.060
Δρ	- - - —	0.291
Δδ 1850, March 8,		15 27.249

Rev. = 15″.3771.

March 10. 20 Tauri — η Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
20 Tauri	5 40.0	1 40.230	
η Tauri		3 40.329	+ 0.099
	42.0	1 40.172	
		3 40.392	0.220
	45.0	1 40.232	
		3 40.420	0.188
	49.0	1 40.321	
		3 40.470	0.149
	51.0	1 40.290	
		3 40.430	0.140
	55.0	1 40.430	
		3 40.620	0.190
	56.0	1 40.418	
		3 40.582	0.164
	59.0	1 40.392	
		3 40.630	0.238
	6 02.0	1 40.423	
		3.40.693	0.270
	04.0	1 40.400	
		3 40.646	0.246
	07.0	1 40.418	
		3 40.623	0.205
	09.0	1 40.410	
		3 40.646	0.236
	12.0	1 40.510	
		3 40.675	0.165
	14.0	1 40.452	
		3 40.705	0.253
	17.0	1 40.470	
		3 40.717	0.247
	19.0	1 40.507	
		3 40.670	+ 0.163

	h. m.
M. Sid. T.	6 0.8

	h. m.	
Hour angle	2 22.2	+ 0.204
Interval	3 — 1	60.080
		60.284

		′ ″
Δδ 1840	- - - - -	15 26.209
Δp	- - - +	1.265
Δm	- - - +	.060
Δρ	- - - —	.296
Δδ 1850, March 10,		15 27.238

Rev. = 15″.3812.

Δp Δm are the differences of precession and proper motion between the compared stars, from 1840 to the time of observation.
Δρ is the difference of refraction.

FOR THE VALUE OF A REVOLUTION OF THE MICROMETER SCREW.

March 11. 20 Tauri — η Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
20 Tauri	5 27.0	1 39.650	+ 0.207
		3 39.851	
	30.0	1 39.603	0.224
		3 39.827	
	32.0	1 39.550	0.191
		3 39.741	
	34.5	1 39.570	0.137
		3 39.707	
	37.0	1 39.600	0.181
		3 39.781	
	39.0	1 39.561	0.160
		3 39.721	
	42.0	1 39.542	0.249
		3 39.791	
	44.0	1 39.500	0.211
		3 39.711	
	46.0	1 39.559	0.190
		3 39.749	
	5 49.0	1 39.595	+ 0.180
		3 39.775	

	h. m.	
Mean Sid. T.	5 38.0	
	h. m.	
Hour angle	2 00 E.	+ 0.193
Interval	3 — 1	— 60.080
		60.273

		′ ″
Δδ 1840 - - - - -		15 26.209
Δp - - -	+	1.263
Δm - - -	+	.060
Δρ - - -	—	.286
Δδ 1850, March 11,		15 27.246

Rev. = 15″.3841.

February 11. Bessel (4) — (10)

	Sid. T.	Mic.	Δ mic.
	h. m.		
(4)	8 01.0	2 37.616	
(10)		2 55.762	18.146
	4.0	2 37.557	
		2 55.742	18.185
	9.0	2 37.381	
		2 55.688	18.307
	10.0	2 37.461	
		2 55.727	18.266
	12.0	2 37.379	
		2 55.690	18.311
	14.0	2 37.378	
		2 55.678	18.290
	8 16.0	2 37.502	
		2 55.602	18.100

February 11. Bessel (4) — (10)

	Sid. T.	Mic.	Δ mic.
	h. m.		
(4)	8 18.0	2 37.240	
(10)		2 55.490	18.250
	20.0	2 37.328	
		2 55.482	18.154
	8 26.0	2 37.191	
		2 55.410	18.219

	h. m.	
Mean Sid. T.	8 13	
	h. m.	r.
Hour angle	4 36 W.	18.223

		′ ″
Δδ 1840 - - - - -		4 40.88
Δp - - -	+	.642
Δρ - - -	—	.141
Δδ 1850, February 11,		4 41.381

Rev. = 15″.4409.

February 12. Bessel (4) — (10)

	Sid. T.	Mic.	Δ mic.
	h. m.		
(4)	4 03.0	2 29.461	
(10)		2 47.715	18.254
	4 8.0	2 29.210	
		2 47.418	18.208
	4 11.0	2 29.140	
		2 47.460	18.320
	5 2.0	2 27.926	
		2 45.240	18.314
	5.0	2 28.050	
		2 46.268	18.218
	8.0	2 27.893	
		2 46.179	18.286
	11.0	2 28.009	
		2 46.208	18.199
	13.0	2 27.949	
		2 46.192	18.243
	15.0	2 27.882	
		2 46.248	18.366
	17.0	2 28.011	
		2 46.218	18.207
	18.0	2 27.938	
		2 46.220	18.282
	20.0	2 28.011	
		2 46.325	18.314
	23.0	2 27.840	
		2 46.222	18.382
	25.0	2 28.060	
		2 46.271	18.211
	27.0	2 28.135	
		2 46.189	18.054
	5 30.0	2 28.000	
		2 46.313	18.313

February 12. Bessel (4) — (10)

	Sid. T.	Mic.	Δ mic.
(4)	h. m.		
(10)	5 31.0	2 28.011	
		2 46.259	18.248
	36.0	2 27.990	
		2 46.209	18.119
	5 38.0	2 28.045	
		2 46.170	18.125

	h. m.	
Mean Sid. T.	5 08.5	
	h. m.	
Hour angle	1 31.4 E.	18.245

		′ ″
Δδ 1840 - - - - -		4 40.88
Δp - - -	+	0.646
Δρ - - -	—	.085
Δδ 1850, February 12,		4 41.441

Rev. = 15″.4256.

February 17. Bessel (4) — (10)

	Sid. T.	Mic.	Δ mic.
	h. m.		
(4)	3 46.0	2 26.888	
(10)		2 45.234	18.346
	49.0	2 26.764	
		2 45.039	18.275
	53.0	2 26.740	
		2 45.037	18.297
	58.0	2 26.771	
		2 45.079	18.308
	4 1.0	2 26.690	
		2 45.019	18.329
	3.0	2 26.668	
		2 44.999	18.331
	6.0	2 26.665	
		2 45.013	18.348
	8.0	2 26.688	
		2 44.932	18.244
	10.0	2 26.762	
		2 45.090	18.328
	4 12.0	2 26.770	
		2 45.085	18.315

	h. m.	
Mid. Sid. T.	4. 0.6	
	h. m.	r.
Hour angle	0 23.5 E.	18.312

		′ ″
Δδ 1840 - - - - -		4 40.88
Δp - - -	+	0.616
Δρ - - -	—	0.085
Δδ 1850, February 17,		4 41.411

Value = 15″.3676.

FOR THE VALUE OF A REVOLUTION OF THE MICROMETER SCREW.

February 22. 16 Tauri — 20 Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
16 Tauri	4 24.0	2 55.020	
20 Tauri		2 36.008	19.012
	29.0	2 56.030	
		2 35.960	19.070
	32.0	2 55.005	
		2 35.960	19.045
	34.0	2 54.951	
		2 35.980	18.971
	36.0	2 55.102	
		2 35.930	19.172
	39.0	2 54.900	
		2 35.858	19.042
	42.0	2 55.030	
		2 35.895	19.145
	45.0	2 55.050	
		2 35.890	19.160
	47.0	2 55.007	
		2 35.820	19.187
	49.0	2 54.980	
		2 35.932	19.048
	52.0	2 54.980	
		2 35.900	19.080
	4 53.0	2 55.031	
		2 35.850	19.181
	h. m.		
Mid. Sid. T.	4.40.0		
	h. m.		
Hour angle	1 04 W.	19.093	

		′ ″
Δ δ 1840	- - - - -	4 53.543
Δ p	- - - —	.736
Δ m	- - - +	.160
Δ ρ	- - - —	.089
Δ δ 1850, February 20,		4 52.878

Rev. = 15″.3395.

February 23. 16 Tauri — 20 Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
16 Tauri	4 07.0	2 54.780	
20 Tauri		2 35.705	19.075
	9.0	2 54.721	
		2 35.710	19.011
	12.0	2 54.760	
		2 35.762	18.998
	13.0	2 54.749	
		2 35.732	19.017
	4 15.0	2 54.730	
		2 35.671	19.059

February 23. 16 Tauri — 20 Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
16 Tauri	4 18.0	2 54.708	
20 Tauri		2 35.639	19.069
	21.0	2 54.710	
		2 35.661	19.049
	22.0	2 54.688	
		2 35.615	19.073
	24.0	2 54.696	
		2 35.661	19.035
	26.0	2 54.708	
		2 35.643	19.065
	30.0	2 54.720	
		2 35.828	18.892
	32.0	2 54.795	
		2 35.798	18.997
	34.0	2 54.882	
		2 35.705	19.177
	37.0	2 54.829	
		2 35.720	19.109
	39.0	2 54.761	
		2 35.650	19.111
	42.0	2 54.788	
		2 35.765	19.023
	44.0	2 54.772	
		2 35.689	19.083
	46.0	2 53.871	
		2 35.690	19.181
	47.0	2 54.785	
		2 35.689	19.096
	50.0	2 54.772	
		2 35.731	19.041
	53.0	2 54.800	
		2 35.728	19.072
	55.0	2 54.818	
		2 35.750	19.068
	57.0	2 54.829	
		2 35.790	19.039
	5 0.0	2 54.950	
		2 35.781	19.169
	5 2.0	2 54.830	
		2 35.735	19.095
	h. m.		
Sid. Mid. T.	4 34.2		
	h. m.	r.	
Hour angle	1 8.0 W.	19.064	

		′ ″
Δ δ 1840	- - - - -	4 53.54
Δ p	- - - —	.738
Δ m	- - - +	.160
Δ ρ	- - - —	.089
Δ δ 1850, February 22,		4 52.873

Rev. = 15″.3626.

February 25. 16 Tauri — 20 Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
16 Tauri	4 28.0	2 50.728	
20 Tauri		2 31.632	19.096
	30.9	2 50.698	
		2 31.650	19.048
	32.0	2 50.660	
		2 31.657	19.003
	34.0	2 50.679	
		2 31.620	19.059
	38.0	2 50.741	
		2 31.740	19.001
	41.0	2 50.783	
		2 31.691	19.092
	42.5	2 50.820	
		2 31.715	19.105
	45.0	2 50.792	
		2 31.727	19.065
	49.0	2 50.838	
		2 31.751	19.087
	51.0	2 50.826	
		2 31.703	19.123
	53.0	2 50.851	
		2 31.731	19.120
	55.0	2 50.799	
		2 31.720	19.079
	58.0	2 50.862	
		2 31.863	18.999
	5 1.0	2 50.878	
		2 31.808	19.070
	2.0	2 50.875	
		2 31.879	18.996
	5.0	2 50.888	
		2 31.765	19.123
	7.0	2 50.870	
		2 31.849	19.021
	9.0	2 50.839	
		2 31.830	19.009
	11.0	2 50.862	
		2 31.810	19.052
	13.0	2 50.879	
		2 31.822	19.057
	h. m.		
Mid. Sid. T.	4 51.2		
	h. m.	r.	
Hour angle	1 15.2	19.060	

		′ ″
Δ δ 1840	- - - - -	4 53.54
Δ p	- - - - —	.741
Δ m	- - - - +	.160
Δ ρ	- - - - —	.089
Δ δ 1850, February 25,		4 52.870

Rev. = 15″.3657.

FOR THE VALUE OF A REVOLUTION OF THE MICROMETER SCREW.

February 26. 16 Tauri — 20 Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
16 Tauri	4 15.0	2 47.861	
20 Tauri	0 38.0	2 28.883	19.078
	18.0	2 47.890	
		2 28.848	19.042
	20.0	2 47.759	
		2 28.719	19.040
	22.0	2 47.777	
		2 28.708	19.069
	24.0	2 47.722	
		2 28.752	18.970
	27.0	2 47.772	
		2 28.690	19.082
	29.0	2 47.750	
		2 28.680	19.070
	31.0	2 47.727	
		2 28.662	19.065
	34.0	2 47.720	
		2 28.690	19.030
	36.0	2 47.688	
		2 28.709	18.979
	38.0	2 47.731	
		2 28.748	18.983
	0 40.0	2 47.719	
		2 28.712	19.007

	h. m.	
Mid. Sid. T.	4 27.9	
	h. m.	r.
Hour angle	0 51.9	19.034

		′ ″
Δδ 1840		4 53.54
Δp	—	.742
Δm	+	.160
Δρ	—	.089
Δδ 1850, February 26,		4 52.859

Rev. = 15″.3866.

March 1. 16 Tauri — 20 Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
16 Tauri	4 41.0	2 43.023	
20 Tauri	1 5.0	2 23.980	19.043

March 1. 16 Tauri — 20 Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
16 Tauri	1 44.0	2 43.139	
20 Tauri		2 23.935	19.204
	46.0	2 43.031	
		2 24.001	19.031
	48.0	2 43.021	
		2 24.061	18.960
	51.0	2 43.087	
		2 24.021	19.066
	53.0	2 43.003	
		2 24.070	18.933
	55.0	2 43.049	
		2 23.983	19.066
	1 57.0	2 43.070	
		2 24.050	19.020

	h. m.	
Mid. Sid. T.	4 49.4	
	h. m.	r.
Hour angle	1 13	19.040

		′ ″
Δδ 1840		4 53.54
Δp	—	.743
Δm	+	.060
Δρ	—	.089
Δδ 1850, March 1,		4 52.868

Rev. = 15″.3817.

March 4. 16 Tauri — 20 Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
16 Tauri	5 4.0	2 61.360	
20 Tauri		2 42.479	18.881
	6.0	2 61.351	
		2 42.328	19.023
	8.0	2 61.438	
		2 42.341	19.087
	10.0	2 61.389	
		2 42.268	19.121
	5 16.0	2 61.549	
		2 42.436	19.113

March 4. 16 Tauri — 20 Tauri.

	Sid. T.	Mic.	Δ mic.
	h. m.		
16 Tauri	5 18.0	2 61.480	
20 Tauri		2 42.430	19.050
	21.2	2 61.698	
		2 42.622	19.076
	23.0	2 61.621	
		2 42.552	19.069
	25.0	2 61.621	
		2 42.540	19.081
	28.0	2 61.731	
		2 42.670	19.061
	30.0	2 61.503	
		2 42.532	18.971
	32.0	2 61.533	
		2 42.471	19.062
	36.0	2 61.610	
		2 42.506	19.104
	37.0	2 61.568	
		2 42.520	19.048
	40.0	2 61.562	
		2 42.643	18.919
	41.0	2 61.665	
		2 42.622	19.033
	44.0	2 61.701	
		2 42.750	18.951
	5 47.0	2 61.745	
		2 42.573	19.172

	h. m.	
Mid. Sid. T.	5 25.9	
	h. m.	r.
Hour angle	1 49	19.046

		′ ″
Δδ 1840		4 53.54
Δp	—	.744
Δm	+	.160
Δρ	—	.092
Δδ 1850, March 4,		4 52.864

Rev. = 15″.3767.

RESULTS.

	No. comp.	A.	Therm. °	Rev. ″	
February 5,	17	7	27 F.	15.3770	From 20 Tauri — η Tauri.
March 8,	16	7	51	.3771	
10,	16	10	52	.3812	
11,	10	9	45	.3841	
February 11,	10	7	42	.4409	From Bessel (4) — (10)
12,	19	7	47	.4256	
17,	10	10	40	15.3676	

	No. comp.	A.	Therm. °	Rev. ″	
February 22,	12	9	47	15.3395	From 16 Tauri — 20 Tauri.
23,	25	9	43	.3626	
25,	20	10	56	.3657	
26,	12	10	60	.3866	
March 1,	8	7	56	.3817	
4,	18	8	40	15.3767	

The value adopted for 1850 is 15″.3696. It is the mean of all the observations when A is greater than 8.

OCCULTATIONS OF STARS BY THE MOON.

DATE.	OBJECTS.	Mag.		Chron. time.	Corr. Chron.	Sid. time.	Mean time.	REMARKS.
1850.				Siderial T. h. m. s.	s.	h. m. s.	h. m. s.	
Feb. 19	48, Tauri . . .	6.	Im.	3 51 24.62	+ 33.86	3 51 58.48	5 53 50.93	
	48, Tauri . . .	6.	Em.	4 47 2.10	33.85	4 47 35.95	6 49 19.49	
	γ Tauri . . .	3.5	Im.	6 27 31.10	33.74	6 28 4.84	8 29 31.92	
	70, Tauri . . .	7.	Im.	9 22 24.62	33.62	9 22 58.24	11 23 56.67	
April 15	α Tauri . . .	1.	Im.	3 1 23.59	+ 1.53	3 1 25.13	1 27 11.22	Star indistinct and tremulous; the instant of disparition uncertain.
May 26	16, Sagittarii . .	6.	Im.	15 38 13.00	− 68.59	15 37 4.41	11 19 24.46	Instant of disparition uncertain half a second.
June 12	2759, B. A. C . .	7.	Im.	13 39 42.53	− 46.25	13 38 56.28	8 14 53.18	
				Mean time.				
Oct. 14	θ Capricorni . .	5.5	Im.	6 22 34.00	+ 0.36	. . . .	6 22 34.36	
19	26, Ceti	6.5	Im.	6 30 32.40	35.49	. . . .	6 31 7.89	
Nov. 20	7202, B. A. C. . .	6.	Im.	6 41 11.50	14.06	. . . .	6 41 25.56	This star is double; the occultation is of the last star.
Dec. 8	ι Capricorni . .	5.	Im.	7 41 2.10	+ 2.09	. . . .	7 41 4.19	

These observations by Mr. Ferguson.

MEAN PLACES OF STARS FOR 1850.0

AS OBSERVED AT

THE NATIONAL OBSERVATORY,

IN THE YEARS

1849 AND 1850.

Polaris.

			h.	m.	s.
March	7	S. P.	1	4	62.01
	10				59.74
	19				(54.45)
	19	S. P.			(53.37)
	22				62.51
	23				59.90
April	2				56.66
	5				63.31
	14	S. P.			60.65
	18	S. P.			61.53
	19	S. P.			64.23
	30	S. P.			58.98
May	2	S. P.			61.87
	14	S. P.			59.98
	17	S. P.			60.65
	18	S. P.			62.65
	23	S. P.			61.06
July	10	S. P.			61.67
	17	S. P.			61.29
	18	S. P.			60.70
August	6	S. P.			57.38
September	7	S. P.			56.43
	10	S. P.			60.72
	28	S. P.			61.20

α Arietis.

		h.	m.	s.
January	2	1	58	43.61

γ Ceti.

		h.	m.	s.
March	2	2	35	31.70
	5			32.04
	12			32.02

Arietis, (845.)

		h.	m.	s.
March	4	2	36	50.43

α Ceti.

		h.	m.	s.
March	4	2	54	26.65
	10			26.59
	12			26.48

α Persei.

		h.	m.	s.
January	10	3	13	38.49
	11			38.09
	12			38.22
	18			38.25

Dec. + 33° 37′.

		h.	m.	s.
January	2	3	30	38.68
	5			38.44

Persei, (1132.)

		h.	m.	s.
January	2	3	32	52.92
	5			52.90

η Tauri.

		h.	m.	s.
January	4	3	38	34.45
	10			34.56
	12			34.50
	18			34.51
	27			34.55
February	3			34.50

Dec. + 35° 33′.

		h.	m.	s.
January	2	3	47	0.23

Dec. + 36° 03′.

		h.	m.	s.
January	10	3	47	48.22

γ¹ Eridani.

		h.	m.	s.
January	11	3	51	1.94
	12			2.01
	17			1.85
	18			2.00
	23			1.99
	27			2.08
February	3			1.86

λ Tauri.

		h.	m.	s.
January	4	3	52	22.59

α Tauri.

		h.	m.	s.
January	2	4	27	18.95
	4			19.13
	10			18.94
	11			18.96
	17			19.12
	18			19.01
	23			19.00
	24			19.06
February	3			19.07
	7			18.95

Dec. + 43° 56′.

		h.	m.	s.
January	5	4	44	5.86

Dec. + 43° 50′.

		h.	m.	s.
February	7	4	44	23.26

Dec. + 43° 51′.

		h.	m.	s.
January	5	4	44	39.91
February	7			39.85

Dec. + 43° 50′.

		h.	m.	s.
January	4	4	45	7.01
	5			7.00

Dec. + 44° 24′.

		h.	m.	s.
January	5	4	51	34.85

ι Tauri.

		h.	m.	s.
February	3	4	54	7.73

Dec. + 45° 7′.

		h.	m.	s.
February	7	4	54	24.19

Dec. + 44° 30′.

		h.	m.	s.
January	2	4	55	44.59
	4			44.57

Tauri, (1562.)

		h.	m.	s.
February	19	4	56	36.39

Dec. + 26° 30′.

		h.	m.	s.
January	27	4	57	45.43

Dec. + 26° 7′.

		h.	m.	s.
February	19	4	58	39.90

Dec. + 26° 30′.

		h.	m.	s.
January	27	4	58	40.05

Dec. + 26° 30′.

		h.	m.	s.
January	27	5	1	45.27

Dec. + 26° 30′.

		h.	m.	s.
January	27	5	2	4.49
February	6			4.86

Dec. + 26° 16′.

		h.	m.	s.
February	19	5	3	4.62

α Aurigæ.

		h.	m.	s.
January	11	5	5	36.91
	18			37.09
	23			36.87
	24			36.92
	26			36.98
May	19			37.10
June	5			(37.56)
July	10			36.90
	11			36.90
	12			37.00

Dec. — 8° 20′.

		h.	m.	s.
February	12	5	6	20.65

β Orionis.

		h.	m.	s.
January	2	5	7	19.86
	4			19.87
	5			19.68
	12			19.76
February	3			19.90
	7			19.76
	9			19.77
	12			19.78
July	16			19.84

Dec. + 26° 30′.

		h.	m.	s.
January	27	5	10	31.52

Dec. + 26° 30′.

		h.	m.	s.
February	6	5	13	53.34

Dec. + 26° 30′.

		h.	m.	s.
January	27	5	14	53.33

Dec. + 26° 30′.

		h.	m.	s.
February	6	5	15	16.24

Dec. + 26° 30′.

		h.	m.	s.
February	6	5	16	48.18

β Tauri.

		h.	m.	s.
January	2	5	16	48.81
	4			48.74
	10			48.78
	12			48.82
	18			48.71
	23			48.78
	24			48.75
	26			48.76
February	3			(48.49)
	7			48.78
July	10			48.84
	11			48.79
	12			48.78
	16			48.77

Dec. + 26° 30′.

		h.	m.	s.
January	27	5	17	16.30

Dec. + 26° 30′.

		h.	m.	s.
January	27	5	18	47.73

Dec. + 26° 30′.

		h.	m.	s.
January	27	5	20	22.61

Dec. + 26° 30′.

		h.	m.	s.
January	27	5	21	43.08

Dec. + 26° 30′.

		h.	m.	s.
January	27	5	22	35.90

δ Orionis.

		h.	m.	s.
January	4	5	24	20.64
	10			20.71
	12			20.89
	18			20.80
	23			20.73
	26			20.72
February	3			20.71
	6			20.71
	7			20.72
	9			20.56
	19			20.74
	23			20.68
July	10			20.69
	11			20.69
	12			20.66
	16			20.61

α Leporis.

		h.	m.	s.
January	11	5	26	7.00
	12			6.95

ε Orionis.

		h.	m.	s.
January	4	5	28	36.23
	10			36.24
	11			36.12
	12			36.34
	18			36.15
	26			36.17
	27			36.16
February	7			36.27
	12			36.24
	19			36.17
	23			36.19
July	11			36.17
	12			36.16
	16			36.31

ζ Tauri.

		h.	m.	s.
February	3	5	28	41.03

α Columbæ.

		h.	m.	s.
January	11	5	34	13.07
	23			13.14
February	6			13.12

α Orionis.

		h.	m.	s.
January	11	5	47	3.19
	18			3.00
	26			3.06
February	3			3.10
	10			3.04
	12			3.08
	19			3.03
	23			3.11
March	7			3.26
July	10			3.12

μ Geminorum.

		h.	m.	s.
March	8	6	13	53.06

α Canis Majoris.

		h.	m.	s.
January	26	6	38	32.24
February	3			32.28
	7			32.37
	9			32.26
	10			32.48
	13			32.22
March	7			32.42
	10			32.30
April	2			32.20

Dec. + 52° 10′.

		h.	m.	s.
February	12	6	40	6.59

ε Canis Majoris.

		h.	m.	s.
January	26	6	52	43.85
February	6			43.80
	13			44.03
March	7			43.83
	8			43.89
	12			43.87
	16			43.79
April	2			43.91

δ Geminorum.

		h.	m.	s.
January	26	7	11	9.55
	27			9.49
February	6			9.65
	7			9.61
	10			9.51
	13			9.49
March	7			9.61
	16			9.70
April	2			9.66

α² Geminorum.

		h.	m.	s.
January	26	7	25	1.47
February	6			1.26
	7			1.28
	10			1.28
	13			1.16
March	10			1.25
	12			1.28
	16			1.30
	19			1.22
	22			1.26
April	2			1.34
August	6			1.41
	7			1.26
	16			1.20

α Canis Minoris.

		h.	m.	s.
January	26	7	31	26.85
February	7			26.79
	10			26.88
	13			26.86
March	10			26.93
	12			26.82
	19			26.81
	23			26.84
April	2			26.93
August	7			26.85
	16			26.78

β Geminorum.

		h.	m.	s.
January	26	7	36	7.71
February	6			7.84
	7			7.76
	10			7.67
	13			7.76
March	10			7.77
	12			7.78
	19			7.76
	23			7.89
August	7			7.71
	16			7.82

15 Argus.

		h.	m.	s.
January	26	8	1	9.30
March	8			9.39
	10			9.31
	12			9.28
	22			9.41
	23			9.21

θ Cancri.

		h.	m.	s.
February	6	8	23	2.35

δ Cancri.

		h.	m.	s.
February	6	8	36	9.19

ε Hydræ.

		h.	m.	s.
January	26	8	38	49.79
February	7			49.72
April	5			49.65
	6			49.68
	12			49.64

ι Ursæ Majoris.

		h.	m.	s.
January	26	8	48	54.73
April	5			54.74
	6			54.68
	12			54.88

α Hydræ.

		h.	m.	s.
January	26	9	20	12.80
February	9			12.95
April	6			12.83
	11			12.92
	12			13.05
	16			12.93

ξ Leonis.

		h.	m.	s.
February	6	9	23	51.29
	7			51.24

ο Leonis.

		h.	m.	s.
February	7	9	33	8.32

ε Leonis.

		h.	m.	s.
February	7	9	37	19.76
April	6			19.57
	10			19.64
	11			19.68
	12			19.58
	16			19.69
	20			19.66

α Leonis.

		h.	m.	s.
February	7	10	0	22.41
March	30			22.69
April	10			22.60
	11			22.69
	12			22.64
	14			22.47
	16			22.62
	19			22.56
	20			22.74
	30			22.69

ρ Leonis.

		h.	m.	s.
February	7	10	24	54.25

Dec. — 3° 51′.

		h.	m.	s.
April	30	10	26	21.10

Dec. — 3° 51′.

		h.	m.	s.
April	30	10	28	9.97

Dec. — 3° 51′.

		h.	m.	s.
April	30	10	28	54.36
May	2			54.88

Dec. — 3° 50′.

		h.	m.	s.
May	2	10	29	43.21

Dec. — 3° 37′.

		h.	m.	s.
May	2	10	35	27.23

Dec. — 0° 46′.

		h.	m.	s.
April	30	10	45	1.81
May	2			2.02

Dec. — 0° 46′.

		h.	m.	s.
April	30	10	45	59.95

Dec. — 0° 46′.

		h.	m.	s.
April	30	10	46	54.35
May	2			54.66

Dec. — 0° 46′.

		h.	m.	s.
April	30	10	48	26.41
May	2			26.61

d Leonis.

		h.	m.	s.
March	7	10	52	48.95
	8			48.74

α Ursæ Majoris.

		h.	m.	s.
March	30	10	54	25.90
April	10			25.71
	12			25.78
	18			25.47

χ Leonis.

		h.	m.	s.
March	7	10	57	16.51
	8			16.55
May	2			16.48

Dec. —41° 24′.

		h.	m.	s.
March	30	11	4	15.30

δ Leonis.

		h.	m.	s.
March	7	11	6	7.36
	12			7.45
	16			7.47
	29			7.42
April	10			7.47
	12			7.41
	18			7.25
	19			7.35
	30			7.45
May	2			7.41

δ Hydræ et Crateris.

Month	Day	h.	m.	s.
March	7	11	11	50.58
	16			50.55
	29			50.63
	30			50.59
April	10			50.74
	12			50.69
	14			50.61
	18			50.73
	19			50.75
	30			50.59

σ Leonis.

Month	Day	h.	m.	s.
April	5	11	13	24.15
May	2			23.94

τ Leonis.

Month	Day	h.	m.	s.
April	5	11	20	13.48
May	9			13.32

Crateris, (3925.)

Month	Day	h.	m.	s.
May	9	11	25	10.09

υ Leonis.

Month	Day	h.	m.	s.
May	9	11	29	15.96

ζ Crateris.

Month	Day	h.	m.	s.
May	9	11	37	9.68

Dec. + 15° 5′.

Month	Day	h.	m.	s.
April	19	11	40	55.31

β Leonis.

Month	Day	h.	m.	s.
March	29	11	41	24.17
April	14			24.32
	18			24.21
	30			24.24
May	9			24.15
	14			24.25

β Virginis.

Month	Day	h.	m.	s.
March	8	11	42	52.78

γ Ursæ Majoris.

Month	Day	h.	m.	s.
September	11	11	45	54.91
October	24			55.05

Virginis, (4063.)

Month	Day	h.	m.	s.
May	11	11	55	55.13

Virginis, (4083.)

Month	Day	h.	m.	s.
May	11	12	0	19.74

Virginis, (4114.)

Month	Day	h.	m.	s.
May	11	12	5	47.55

η Virginis.

Month	Day	h.	m.	s.
April	5	12	12	14.02
	6			14.12
May	2			13.83

Virginis, (4168.)

Month	Day	h.	m.	s.
May	11	12	14	54.37
	15			54.36

Virginis, (4200.)

Month	Day	h.	m.	s.
May	15	12	20	9.82

β Corvi.

Month	Day	h.	m.	s.
March	19	12	26	30.92
April	18			30.97
	19			30.97
	30			30.90
May	2			30.95
	9			(31.33)
	11			30.88
	14			30.92
	15			30.84
July	17			30.97

γ Virginis.

Month	Day	h.	m.	s.
April	6	12	34	3.84

Virginis, (4286.)

Month	Day	h.	m.	s.
May	9	12	38	2.28

δ Virginis.

Month	Day	h.	m.	s.
May	31	12	48	3.03

12 Canum Venaticorum.

Month	Day	h.	m.	s.
May	9	12	49	0.27
	15			0.12
	17			0.10
July	10			0.19
October	24			0.23

α Virginis.

Month	Day	h.	m.	s.
March	7	13	17	17.81
	19			17.70
April	6			17.96
	14			17.89
	30			17.82
May	2			17.72
	14			17.75
	15			17.77
	17			17.77
	18			17.79
	23			17.86
	31			17.73
June	4			17.65
	5			17.66
July	17			17.71
	18			17.61
September	10			17.77
	11			17.70
October	24			17.57

λ Virginis.

Month	Day	h.	m.	s.
May	31	13	25	4.48

Dec. + 22° 43′.

Month	Day	h.	m.	s.
April	20	13	36	22.90

Dec. + 22° 43′.

Month	Day	h.	m.	s.
April	20	13	36	52.72

Dec. + 22° 43′.

Month	Day	h.	m.	s.
April	20	13	37	13.26

Dec. + 22° 43′.

Month	Day	h.	m.	s.
April	20	13	38	17.07

Dec. + 22° 43′.

Month	Day	h.	m.	s.
April	20	13	41	32.20
May	2			32.35

η Ursæ Majoris.

Month	Day	h.	m.	s.
May	14	13	41	37.40
	18			37.34
	23			37.46
July	10			37.25
	18			37.52

Dec. + 22° 43′.

Month	Day	h.	m.	s.
April	20	13	42	0.81

υ Bootis.

Month	Day	h.	m.	s.
May	9	13	32	42.53

Dec. + 22° 40′.

Month	Day	h.	m.	s.
May	2	14	43	16.04

η Bootis.

Month	Day	h.	m.	s.
April	19	13	47	32.41
	30			32.41
May	3			32.47
	9			32.49
	14			32.44
	15			32.55
	18			32.53
	23			32.50
June	4			32.57
	5			32.55
July	17			32.50
	18			32.59
September	7			32.57

Dec. + 24° 4′.

Month	Day	h.	m.	s.
April	19	13	50	20.82

Dec. + 23° 47′.

Month	Day	h.	m.	s.
April	20	13	51	38.28

Dec. + 23° 47′.

Month	Day	h.	m.	s.
April	20	13	52	42.43

Dec. + 23° 47′.

Month	Day	h.	m.	s.
April	20	13	54	21.24

Dec. + 23° 56′.

Month	Day	h.	m.	s.
May	2	13	54	31.35

Dec. + 23° 56′.

Month	Day	h.	m.	s.
May	2	13	58	53.40

α Bootis.

Month	Day	h.	m.	s.
March	29	14	8	49.27
April	11			49.16
	30			49.16
May	2			49.12
	3			49.15
	9			49.19
	14			49.11
	15			49.20
	18			49.10
	19			49.11
	23			49.25
June	4			49.18
	5			49.15
	11			49.09
	18			49.33
July	17			49.19
	18			49.17
August	6			49.07
September	7			49.18
October	24			49.24

π Bootis.

Month	Day	h.	m.	s.
May	9	14	33	40.72

ε Bootis.

Month	Day	h.	m.	s.
April	2	14	38	25.98
	10			26.19
	20			26.03
	30			26.19
May	3			26.12
	9			26.14
	14			26.18
	18			26.22
	19			26.10
	23			26.11
June	4			26.19
	5			26.13
	11			25.94
	20			26.06
	22			26.12
July	17			26.13

α² Libræ.

Month	Day	h.	m.	s.
April	2	14	42	35.37
	10			35.21
	20			35.17
	30			35.24
May	3			35.30
	9			35.20
	14			35.25
	18			35.27
	19			35.36
	23			35.25
June	4			35.26
	5			35.32
	11			35.50
	20			35.17
	22			35.26

β Ursæ Minoris.

		h.	m.	s.
April	10	14	51	11.97
	30			12.04
May	14			11.79
June	16			12.22
	22			12.30

Libræ, (4941.)

		h.	m.	s.
May	15	14	53	32.44

β Libræ.

		h.	m.	s.
April	10	15	8	56.29
	20			56.51
	30			56.44
May	9			56.33
	15			56.31
	18			56.34
	19			56.33
	23			56.32
June	4			56.34
	11			56.43
	16			56.36
	18			56.45
	20			56.36
	22			56.47
July	2			56.42

Libræ, (5125.)

		h.	m.	s.
April	10	15	25	59.02

α Coronæ Borealis.

		h.	m.	s.
April	20	15	28	20.16
May	9			20.16
	14			20.19
	15			20.23
	17			20.14
	18			20.13
	19			20.00
	23			20.23
June	11			20.15
	16			20.30
	18			20.14
	20			20.31
	22			20.13
July	2			20.22
	5			20.27

α Serpentis.

		h.	m.	s.
April	10	15	36	52.89
	20			52.99
May	11			52.81
	14			52.89
	15			52.86
	17			52.88
	18			52.90
	19			52.94
	23			52.92
	31			52.91
June	11			53.05
	16			52.89
	18			53.03
	20			52.93
	22			52.87
July	2			52.91
	5			52.95

ζ Ursæ Minoris.

		h.	m.	s.
July	2	15	49	31.63
	5			31.51

Libræ, (5290.)

		h.	m.	s.
April	10	15	49	47.61

β¹ Scorpii.

		h.	m.	s.
April	10	15	56	43.30
May	15			43.33
	23			43.26
June	4			43.25
	11			43.13
	26			43.36
July	5			43.27

ν Scorpii.

		h.	m.	s.
June	4	16	3	16.94
July	2			17.01

δ Ophiuchi.

		h.	m.	s.
May	11	16	6	29.30
	15			29.20
	23			29.27
	31			29.22
June	11			29.25
	16			29.17
	26			29.37
July	5			29.30

ψ Ophiuchi.

		h.	m.	s.
April	10	16	15	19.79
July	2			19.94

α Scorpii.

		h.	m.	s.
May	11	16	20	13.04
	15			13.01
June	16			13.00
	26			13.01
July	2			12.96
	5			12.93
Aug.	27			13.01

φ Ophiuchi.

		h.	m.	s.
April	10	16	22	33.51
June	4			33.51

20 Ophiuchi.

		h.	m.	s.
June	4	16	41	32.36

η Ophiuchi.

		h.	m.	s.
July	2	17	1	46.57

α Herculis.

		h.	m.	s.
May	23	17	7	48.38
June	16			48.51
July	5			48.38
	10			48.42
	13			48.47
August	27			48.56

θ Ophiuchi.

		h.	m.	s.
July	2	17	12	47.98
August	27			47.97

α Ophiuchi.

		h.	m.	s.
June	16	17	27	58.30
	18			58.25
July	2			58.20
	5			58.36
	10			58.30
	13			58.36
August	27			58.30

58 Ophiuchi.

		h.	m.	s.
August	27	17	34	26.41

γ Draconis.

		h.	m.	s.
July	10	17	53	7.29
	13			7.31
August	27			7.56

μ¹ Sagittarii.

		h.	m.	s.
June	18	18	4	47.29
	20			47.58
	26			47.59
July	2			47.58
	5			47.42
	10			47.53
	13			47.50
August	16			47.45
	27			47.54

λ Sagittarii.

		h.	m.	s.
August	27	18	18	42.64

δ Ursæ Minoris.

		h.	m.	s.
January	18 S.P.	18	20	43.65
	26 S.P.			43.71
	27 S.P.			43.73
February	3 S.P.			43.54
	7 S.P.			43.24
	9 S.P.			43.98
	10 S.P.			43.64
	12 S.P.			43.65
March	7 S.P.			43.27
June	18			43.75
	20			44.25
	26			43.18
July	2			44.05
	5			43.57
	10			43.19
	13			43.67
August	16			43.55

α Lyræ.

		h.	m.	s.
August	27	18	31	51.25
September	7			51.64
	11			51.64
December	7			51.37

β Libræ.

		h.	m.	s.
June	26	18	44	32.26
July	5			32.58
August	16			32.50
	27			32.44
September	7			32.55
	13			32.43
	25			32.45

σ Sagittarii.

		h.	m.	s.
September	25	18	55	41.39

ζ Aquilæ.

		h.	m.	s.
August	16	18	58	30.72
	27			30.89
September	7			30.85
	11			30.91
	13			30.87
December	7			30.75

π Sagittarii.

		h.	m.	s.
September	25	19	0	50.49

δ Aquilæ.

		h.	m.	s.
August	16	19	17	56.10
	24			56.08
September	7			56.07
	10			56.03
	11			55.96
	13			56.09
	21			56.03
December	7			56.00

e² Sagittarii.

		h.	m.	s.
September	25	19	33	56.21

γ Aquilæ.

		h.	m.	s.
August	16	19	39	7.60
	24			7.58
September	7			7.65
	10			7.57
	11			7.72
	13			7.59
	15			7.41
	18			7.72
	19			7.68
	21			7.47
	25			7.63
	27			7.66
December	7			7.71

α Aquilæ.

		h.	m.	s.
August	16	19	43	27.90
	24			27.77
September	7			27.72
	10			27.77
	11			27.72
	13			27.78
	14			27.87
	15			27.70
	18			27.77
	19			27.71
	21			27.81
	25			27.75
	27			27.69
December	7			(28.01)

β Aquilæ.

		h.	m.	s.
August	16	19	47	56.60
	24			56.68
September	7			56.64
	10			56.53
	11			56.61
	13			56.66

β Aquilæ—Continued.

	h.	m.	s.
September 14 . . .	19	47	56.64
15 . . .			56.63
18 . . .			56.63
19 . . .			56.51
21 . . .			56.65
27 . . .			56.65

g Sagittarii.

	h.	m.	s.
September 25 . . .	19	49	26.26

α² Capricorni.

	h.	m.	s.
August 24 . . .	20	9	43.60
September 10 . . .			43.58
11 . . .			43.61
14 . . .			43.58
15 . . .			43.62
18 . . .			43.63
19 . . .			43.50
21 . . .			43.64
25 . . .			43.55
28 . . .			43.61

β Capricorni.

	h.	m.	s.
September 27 . . .	20	12	34.62

υ Capricorni.

	h.	m.	s.
September 27 . . .	20	31	30.21

α Cygni.

	h.	m.	s.
September 10 . . .	20	36	19.12
11 . . .			18.99
13 . . .			19.06
14 . . .			19.16
15 . . .			19.04
21 . . .			19.06
27 . . .			19.14

61¹ Cygni.

	h.	m.	s.
September 10 . . .	21	0	10.55
11 . . .			10.63
13 . . .			10.83

61¹ Cygni—Continued.

	h.	m.	s.
September 14 . . .	21	0	10.52
15 . . .			10.63
18 . . .			10.59
19 . . .			10.41
21 . . .			10.69
25 . . .			10.67
28 . . .			10.59
October 8 . . .			10.65

ζ Cygni.

	h.	m.	s.
September 10 . . .	21	6	33.36
11 . . .			33.20
13 . . .			32.90
14 . . .			33.11
15 . . .			33.12
18 . . .			33.21
19 . . .			32.98
21 . . .			33.35
25 . . .			33.22
28 . . .			33.12
October 8 . . .			33.20

α Cephei.

	h.	m.	s.
September 11 . . .	21	14	59.81
14 . . .			59.46
18 . . .			59.66
25 . . .			59.77
28 . . .			59.55
October 8 . . .			59.68

β Aquarii.

	h.	m.	s.
September 10 . . .	21	23	39.54
11 . . .			39.49
13 . . .			39.44
14 . . .			39.30
15 . . .			39.38
18 . . .			39.51
25 . . .			39.50
28 . . .			39.50
October 8 . . .			39.46
24 . . .			39.52

β Cephei.

	h.	m.	s.
September 18 . . .	21	26	42.23
October 8 . . .			42.32

γ Capricorni.

	h.	m.	s.
September 27 . . .	21	31	46.38
28 . . .			46.29

ε Pegasi.

	h.	m.	s.
September 10 . . .	21	36	48.95
11 . . .			49.08
13 . . .			49.04
18 . . .			49.02
21 . . .			48.90
25 . . .			49.04
28 . . .			49.11
October 8 . . .			49.04
24 . . .			49.17

δ Capricorni.

	h.	m.	s.
September 27 . . .	21	38	45.31
28 . . .			45.24

α Aquarii.

	h.	m.	s.
September 7 . . .	21	58	4.61
25 . . .			4.67
October 8 . . .			4.54

ι Aquarii.

	h.	m.	s.
September 28 . . .	21	58	19.71
October 26 . . .			19.73

Dec. −22° 14′.

	h.	m.	s.
September 15 . . .	21	59	29.54

Dec. −21° 58.

	h.	m.	s.
September 11 . . .	22	2	42.16
13 . . .			42.29

θ Aquarii.

	h.	m.	s.
September 28 . . .	22	8	54.81

σ Aquarii.

	h.	m.	s.
October 26 . . .	22	22	42.27

ζ Pegasi.

	h.	m.	s.
September 11 . . .	22	33	58.76
13 . . .			58.95
15 . . .			59.16
21 . . .			58.87
25 . . .			58.75
28 . . .			58.84
October 8 . . .			58.85
9 . . .			58.87
24 . . .			58.78
26 . . .			58.88
November 3 . . .			58.91

λ Aquarii.

	h.	m.	s.
October 26 . . .	22	44	47.16

α Piscis Australis.

	h.	m.	s.
October 26 . . .	22	49	21.01
November 3 . . .			20.88

α Ursæ Majoris.

	h.	m.	s.
October 26 . . .	22	54	25.49

α Pegasi.

	h.	m.	s.
November 3 . . .	22	57	17.51

Dec. +14° 8′.

	h.	m.	s.
October 24 . . .	22	58	4.84

γ Cephei.

	h.	m.	s.
October 26 . . .	23	33	13.93
November 3 . . .			13.98

α Andromedæ.

		h.	m.	s.
April	28 . . .	0	0	38.44
October	1 . . .			38.46
	7 . . .			38.38
	9 . . .			38.80
November	30 . . .			38.54

γ Pegasi.

		h.	m.	s.
February	25 . . .	0	5	31.02
April	28 . . .			30.82
October	1 . . .			30.98
	3 . . .			30.72
	7 . . .			30.75
	31 . . .			30.92
November	9 . . .			30.89
	13 . . .			29.81
	14 . . .			30.89
	21 . . .			31.07
	30 . . .			30.98
December	18 . . .			30.93

α Cassiopeiæ.

		h.	m.	s.
November	14 . . .	0	32	1.78
December	13 . . .			1.70
	18 . . .			1.59

β Ceti.

		h.	m.	s.
November	30 . . .	0	36	4.39
December	13 . . .			3.19

Ceti, (242.)

		h.	m.	s.
December	13 . . .	0	45	20.49

Polaris.

		h.	m.	s.
February	25 . . .	1	4	56.77
April	4 S. P. .		4	59.53
	15 S. P. .		5	1.35
	29 S. P. .		5	0.90
	30 S. P. .		4	54.93
May	1 S. P. .		4	58.74
	6 S. P. .		4	59.23
	9 S. P. .		5	4.27
	11 S. P. .		5	3.15
	12 . . .		5	4.63
	13 S. P. .		5	1.28
	21 S. P. .		4	58.52
	22 S. P. .		4	59.63
	26 . . .		5	1.16
	27 S. P. .		5	0.44
	28 S. P. .		5	0.13
June	3 S. P. .		5	1.99
	4 S. P. .		5	0.13
	5 S. P. .		5	1.76
July	5 S. P. .		4	57.17
	19 S. P. .		5	4.88
September	3 S. P. .		5	5.72
	23 S. P. .		5	1.28
October	1 S. P. .		4	59.68
	3 S. P. .		5	1.36
	7 S. P. .		5	1.15
	8 S. P. .		5	4.13
	27 S. P. .		5	2.87
November	1 S. P. .		4	57.38
December	20 . . .		5	7.96
	26 . . .		5	3.78

θ¹ Ceti.

		h.	m.	s.
November	14 . . .	1	16	31.66
	30 . . .			31.59

θ¹ Ceti—Continued.

		h.	m.	s.
December	18 . . .	1	16	31.52
	20 . . .			31.41
	26 . . .			31.36

ν Piscium.

		h.	m.	s.
December	13 . . .	1	33	37.73

ο Piscium.

		h.	m.	s.
December	13 . . .	1	37	28.45

α Arietis.

		h.	m.	s.
January	12 . . .	1	58	43.68
December	20 . . .			43.66
	26 . . .			43.56

γ Ceti.

		h.	m.	s.
January	12 . . .	2	35	31.91
	14 . . .			32.00
December	20 . . .			31.97
	26 . . .			31.90

α Ceti.

		h.	m.	s.
January	12 . . .	2	54	26.61
	14 . . .			26.37

α Persei.

		h.	m.	s.
January	12 . . .	3	13	38.19
	14 . . .			38.03

η Tauri.

		h.	m.	s.
January	12 . . .	3	38	34.50
	14 . . .			34.58

γ¹ Eridani.

		h.	m.	s.
January	12 . . .	3	51	2.06
	14 . . .			2.18

α Tauri.

		h.	m.	s.
January	14 . . .	4	27	19.00
	30 . . .			19.14
February	5 . . .			18.87
	11 . . .			19.02
	16 . . .			19.11
April	29 . . .			19.02

Bessel's Zones, 396, δ + 26° 16'.

		h.	m.	s.
January	14 . . .	5	3	4.48

α Aurigæ.

		h.	m.	s.
April	29 . . .	5	5	36.96
May	1 . . .			36.85

β Orionis.

		h.	m.	s.
February	3 . . .	5	7	19.80
	11 . . .			19.93
	19 . . .			19.83

β Orionis—Continued.

		h.	m.	s.
April	29 . . .	5	7	19.65
May	1 . . .			19.62
June	5 . . .			20.12
July	2 . . .			19.89
	4 . . .			19.84
August	6 . . .			19.83

β Tauri.

		h.	m.	s.
January	14 . . .	5	16	48.71
	30 . . .			48.78
February	5 . . .			48.89
	16 . . .			48.73
	19 . . .			48.74
	23 . . .			48.73
April	29 . . .			48.77
July	2 . . .			48.85
	4 . . .			48.86
	10 . . .			48.90
August	6 . . .			48.71

δ Orionis

		h.	m.	s.
January	14 . . .	5	24	20.64
	30 . . .			20.66
February	5 . . .			20.65
	11 . . .			20.68
	19 . . .			20.70
	23 . . .			20.71
	25 . . .			20.65
July	2 . . .			20.78
	4 . . .			20.65

ε Orionis.

		h.	m.	s.
January	30 . . .	5	28	36.17
February	5 . . .			36.17
	19 . . .			36.21
	23 . . .			36.17
	25 . . .			36.22
July	4 . . .			36.08

α Columbæ.

		h.	m.	s.
February	20 . . .	5	34	13.14

α Orionis.

		h.	m.	s.
January	11 . . .	5	47	3.08
February	11 . . .			3.15
	16 . . .			3.11
	19 . . .			3.04
	20 . . .			3.14
	23 . . .			3.18
	25 . . .			3.07
	26 . . .			3.06
July	2 . . .			3.15
	4 . . .			3.17
	10 . . .			3.09

μ Geminorum.

		h.	m.	s.
February	11 . . .	6	13	51.54
	22 . . .			53.02

δ Ursæ Minoris, S. P.

		h.	m.	s.
January	12 . . .	6	20	44.01
February	25 . . .			42.70
	26 . . .			44.11
March	5 . . .			42.59

α Canis Majoris.

		h.	m.	s.
January	30 . . .	6	38	32.25
February	5 . . .			32.21
	11 . . .			32.34
	16 . . .			32.33
	22 . . .			32.41
	25 . . .			32.23
	26 . . .			32.21
March	6 . . .			32.33
	11 . . .			32.24
	12 . . .			32.21
June	3 . . .			32.33
	5 . . .			32.55
	7 . . .			32.24
	12 . . .			32.28
July	2 . . .			32.30
	4 . . .			31.96
	10 . . .			31.22
August	6 . . .			32.07

ε Canis Majoris.

		h.	m.	s.
February	11 . . .	6	52	43.79
March	12 . . .			43.89
June	3 . . .			43.89

δ Geminorum.

		h.	m.	s.
January	12 . . .	7	11	9.45
February	5 . . .			9.67
	11 . . .			9.64
	19 . . .			9.64
	23 . . .			9.71
March	6 . . .			9.62
	7 . . .			9.79
	11 . . .			9.57
April	27 . . .			9.66

α² Geminorum.

		h.	m.	s.
February	5 . . .	7	25	1.41
	12 . . .			0.95
	19 . . .			1.34
	23 . . .			1.41
	25 . . .			1.31
	26 . . .			1.32
March	6 . . .			1.25
	7 . . .			1.24
	9 . . .			1.20
	11 . . .			1.23
	12 . . .			1.37
April	27 . . .			1.32
August	6 . . .			1.24

α Canis Minoris.

		h.	m.	s.
February	7 . . .	7	31	26.87
	12 . . .			26.90
	19 . . .			26.84
	25 . . .			26.85
	26 . . .			26.86
March	6 . . .			26.89
	9 . . .			26.80
	11 . . .			26.76
April	27 . . .			26.90
June	3 . . .			26.31
	7 . . .			26.95
	12 . . .			26.86
August	6 . . .			26.88
	21 . . .			26.84

κ Geminorum.

		h.	m.	s.
February	23	7	35	23.09

β Geminorum.

		h.	m.	s.
January	30	7	36	7.89
February	5			7.76
	19			7.77
	25			7.55
March	6			7.73
	7			7.83
	9			7.80
	11			7.66
April	27			7.85
June	3			7.60
	5			7.68
	12			7.73
August	6			7.72
	21			7.69

15 Argus.

		h.	m.	s.
February	11	8	1	9.36
	23			9.27
	25			9.53
March	7			9.51
	19			9.60
April	27			9.29

θ Cancri.

		h.	m.	s.
March	23	8	23	1.94

δ Cancri.

		h.	m.	s.
March	23	8	36	9.07

ε Hydrae.

		h.	m.	s.
February	11	8	38	49.73
	12			49.65
	19			49.79
	25			49.74
	26			49.77
March	11			49.71
	12			49.77
	19			49.71
April	2			49.69
	15			49.56
	27			49.64

ι Ursae Majoris.

		h.	m.	s.
February	11	8	48	54.95
	19			55.01
March	19			54.79
April	2			54.88
	27			54.83

α Cancri.

		h.	m.	s.
February	23	8	50	16.82
March	23			16.61

κ Cancri.

		h.	m.	s.
	[illegible]3	8	59	36.93

α Hydrae.

		h.	m.	s.
February	11	9	20	12.94
	23			13.05
	25			13.00
March	7			12.87
	11			12.89
	19			13.03
	23			12.92
April	2			12.80
	13			12.79
	15			12.88

ο Leonis.

		h.	m.	s.
February	25	9	33	8.26

ε Leonis.

		h.	m.	s.
February	12	9	37	19.63
	19			19.66
	23			19.58
March	7			19.70
	11			19.70
	19			19.59
	23			19.56
April	2			19.66
	4			19.63
	6			19.67
	15			19.60
	17			19.73

π Leonis.

		h.	m.	s.
April	15	9	52	16.63

α Leonis.

		h.	m.	s.
February	12	10	0	22.71
	19			22.66
	25			22.59
March	7			22.77
	11			22.68
	19			22.65
	23			22.57
April	4			22.66
	6			22.59
	13			22.68
	15			22.75
	17			22.60

ρ Leonis.

		h.	m.	s.
February	25	10	24	46.55

Leonis Minoris, (3661.)

		h.	m.	s.
May	1	10	33	46.20

Leonis Minoris, (3704.)

		h.	m.	s.
May	1	10	40	40.14

Leonis Minoris, (3728.)

		h.	m.	s.
May	1	10	44	54.52

β Ursae Majoris.

		h.	m.	s.
April	17	10	52	45.50

α Ursae Majoris.

		h.	m.	s.
February	19	10	54	26.01
March	23			25.51
April	2			25.81
	4			25.60
	6			25.60
	13			25.66
	17			26.20
	18			25.80
	29			25.75
	30			25.56
May	1			25.60
	2			25.69

χ Leonis.

		h.	m.	s.
February	25	10	57	16.48

δ Leonis

		h.	m.	s.
February	19	11	6	7.58
	25			7.23
March	7			7.41
	11			7.89
	19			7.26
	23			7.64
April	2			7.44
	13			7.49
	16			7.44
	18			7.40
	29			7.44
	30			7.37
May	2			7.54
	9			7.88

δ Hydrae et Crateris.

		h.	m.	s.
February	19	11	11	50.66
	25			50.73
March	7			50.58
	11			51.20
April	2			50.59
	4			50.63
	6			50.78
	13			50.62
	16			50.62
	17			50.66
	18			50.62
	29			50.55
	30			50.58
May	2			50.60
	6			50.58
	9			50.60

τ Leonis.

		h.	m.	s.
April	15	11	20	13.23

Hydrae, (3926.)

		h.	m.	s.
May	16	11	25	29.42

Hydrae, (3963.)

		h.	m.	s.
May	16	11	32	46.24

Leonis, (3964.)

		h.	m.	s.
May	9	11	32	58.71

ν Virginis.

		h.	m.	s.
May	20	11	38	8.65

β Leonis.

		h.	m.	s.
February	22	11	41	24.20
April	2			24.26
	6			24.20
	16			24.21
	18			24.25
	30			24.31
May	1			24.26
	2			24.12
	6			24.29
	9			24.27
	11			24.26
	13			24.21
	16			24.25
	21			24.34
October	28			24.23

β Virginis.

		h.	m.	s.
February	26	11	42	52.83
May	20			52.63

γ Ursae Minoris.

		h.	m.	s.
April	2	11	45	55.16
	4			55.20
	15			55.05
	29			55.35
May	9			54.96
	11			54.97
	13			54.93
October	28			54.99

β Corvi.

		h.	m.	s.
February	22	12	26	30.90
April	2			30.75
	6			30.90
	15			30.87
	29			30.86
May	1			30.96
	6			30.85
	9			30.95
	11			30.86
	13			30.90
	16			30.75
	18			30.92
	21			30.96
	28			30.85

Weisse XII, 708.

		h.	m.	s.
April	30	12	41	23.25
May	6			23.07

12 Canum Venaticorum.

		h.	m.	s.
April	2	12	49	0.29
	4			0.12
	6			0.11
	15			0.22
	29			0.16
May	1			0.29
	2			0.19
	16			0.06
	18			0.24
	22			0.21

12 Canum Venaticorum—Continued.

		h.	m.	s.
May	28	13	49	0.04
June	3		48	59.98
October	27		49	0.16
November	10		48	59.92

θ Virginis.

		h.	m.	s.
May	21	13	2	11.29

α Virginis.

		h.	m.	s.
April	29	13	17	17.77
	30			17.64
May	2			17.61
	9			17.72
	13			17.73
	18			17.75
	22			17.67
June	3			17.57
	5			17.66
	10			17.65
	12			17.81
	19			17.81
July	5			17.95
	11			17.88
	19			17.70
September	3			17.74
	23			17.52
October	27			18.83
November	8			17.92

η Ursæ Majoris.

		h.	m.	s.
April	15	13	41	37.46
	29			37.47
May	2			37.80
	9			37.46
	16			37.37
	18			37.66
June	4			37.35
	5			37.30
	10			37.43
	13			37.44
	19			37.33
October	15			37.15
	27			37.49
	28			37.65
November	8			37.71
	21			37.48

η Bootis.

		h.	m.	s.
April	4	13	47	32.50
	15			32.53
	29			32.41
May	2			32.57
	9			32.47
	16			32.44
	18			32.37
June	4			32.53
	5			32.40
	10			32.37
	13			32.49
	19			32.48
July	11			32.49
October	8			32.51
	15			32.64
	27			32.22
	28			32.48
November	8			33.08
	21			32.46

θ Centauri.

		h.	m.	s.
May	16	13	57	52.17
	27			52.34
	28			52.46
June	3			52.70
	5			52.22
	10			52.14

Hydræ, (4711.)

		h.	m.	s.
May	16	14	4	39.23
	27			39.42
June	3			39.06
	10			39.23

κ Virginis.

		h.	m.	s.
June	19	14	4	54.05

ι Virginis.

		h.	m.	s.
June	19	14	8	9.21

α Bootis.

		h.	m.	s.
April	29	14	8	49.42
	30			49.28
May	2			48.95
	9			49.17
	16			49.27
	18			49.09
	20			49.15
	27			49.20
	28			49.40
June	3			49.09
	5			49.20
	10			49.16
	12			49.17
	13			49.19
	24			49.08
	25			49.15
July	5			49.29
	11			49.21
October	3			49.80
	7			49.43
	8			49.20
	10			49.22
	15			48.96
	22			49.17
	28			49.25
	31			49.03
November	3			49.02
	10			49.44
	13			49.19
	21			49.23

Hydræ, (4763.)

		h.	m.	s.
May	16	14	14	27.81
	27			27.94
June	5			27.83
	10			27.83

Hydræ, (4784.)

		h.	m.	s.
May	27	14	19	24.24
June	3			23.86
	5			24.19
	7			24.10
	10			23.90

Libræ, (4854.)

		h.	m.	s.
May	16	14	34	33.92
June	3			33.73
	5			33.89
	7			33.96
	10			33.94
	24			33.85

ε Bootis.

		h.	m.	s.
April	15	14	38	26.26
	30			26.13
May	16			26.15
	18			26.16
	20			26.14
	27			26.20
	28			26.31
June	4			26.01
	7			26.17
	10			26.04
	11			26.00
	12			26.13
	13			26.06
	19			26.09
July	1			25.87
October	3			26.70
	5			26.38
	7			26.33
	8			26.13
	10			26.11
November	13			25.96
	20			25.87
	24			26.14

α² Libræ.

		h.	m.	s.
April	4	14	42	35.28
	15			35.21
	29			35.18
May	2			35.27
	9			35.24
	16			35.28
	18			35.25
	20			35.33
	21			35.17
	27			35.31
	28			35.40
June	3			35.04
	4			35.25
	5			35.18
	7			35.23
	12			35.27
	13			35.30
	19			35.30
	24			35.19
July	1			34.86
October	3			35.79
	5			35.06

Libræ, (4913.)

		h.	m.	s.
May	21	14	45	38.50
June	7			38.02

ξ² Lybræ.

		h.	m.	s.
June	19	14	48	38.17

Hydræ, (4930.)

		h.	m.	s.
May	16	14	49	47.25
	21			47.01
June	5			47.11
	10			47.30

β Ursæ Minoris.

		h.	m.	s.
April	4	14	51	12.41
	15			11.96
	29			12.73
	30			12.40
May	2			11.95
	9			12.05
	18			12.19
	20			12.11
June	3			11.92
	13			11.63
October	10			11.48
November	20			11.83
	24			12.15

Comet-star.

		h.	m.	s.
July	1	14	51	32.24

Hydræ, (4940.)

		h.	m.	s.
May	16	14	53	10.55
	21			10.46
June	5			10.47
	10			10.61

Comet-star, $\delta + 59^\circ\ 7'$.

		h.	m.	s.
July	1	14	53	29.16

Comet-star, $\delta + 59^\circ\ 8'$.

		h.	m.	s.
July	1	14	53	42.63

ι Libræ.

		h.	m.	s.
July	1	15	3	40.50

Lupi, (5009.)

		h.	m.	s.
May	21	15	5	26.60
June	3			26.46
	5			26.74
	10			26.60

β¹ Libræ.

		h.	m.	s.
April	29	15	8	56.44
May	2			56.44
	16			56.38
	18			56.43
	21			56.24
	28			56.32
June	3			56.23
	4			56.44
	5			56.30
	7			56.38
	10			56.32
	12			56.37
October	3			57.03

Lalande, (27837.)

		h.	m.	s.
June	13	15	9	45.71

Lalande, (27852.)

		h.	m.	s.
June	13	15	10	5.34

Lalande, (28090.)

		h.	m.	s.
June	13 . . .	15	17	25.27

Comet-star, δ + 64° 54'.

		h.	m.	s.
June	21 . . .	15	18	16.18
	26 . . .			15.33

Lalande, (28251.)

		h.	m.	s.
May	27 . . .	15	23	26.67
June	13 . . .			26.72
	26 . . .			26.65

α Coronæ Borealis.

		h.	m.	s.
April	15 . . .	15	28	20.23
May	2 . . .			20.37
	9 . . .			20.09
	16 . . .			20.37
	21 . . .			20.27
	27 . . .			20.23
	28 . . .			20.16
June	3 . . .			20.04
	10 . . .			20.19
	11 . . .			20.33
	12 . . .			20.21
	13 . . .			20.22
	19 . . .			20.19
	24 . . .			19.99
	25 . . .			20.18
October	5 . . .			20.14
	28 . . .			20.52
November	4 . . .			20.23
	7 . . .			20.41
	13 . . .			20.41

Lalande, (28414.)

		h.	m.	s.
May	18 . . .	15	28	59.48

Lalande, (28446.)

		h.	m.	s.
May	18 . . .	15	29	55.91
	20 . . .			56.09

ψ^1 Lupi.

		h.	m.	s.
July	1 . . .	15	30	14.67
May	21 . . .			15.05

Lalande, (28466.)

		h.	m.	s.
May	16 . . .	15	30	32.40
	20 . . .			32.43

ψ^2 Lupi.

		h.	m.	s.
May	2 . . .	15	33	8.53
July	1 . . .			7.82

Anonyma.

		h.	m.	s.
May	20 . . .	15	36	37.64

α Serpentis.

		h.	m.	s.
April	4 . . .	15	36	52.94

α Serpentis—Continued.

		h.	m.	s.
May	2 . . .	15	36	52.89
	16 . . .			52.88
	21 . . .			52.81
	27 . . .			52.92
	28 . . .			52.87
June	3 . . .			52.81
	4 . . .			52.99
	5 . . .			52.87
	10 . . .			52.86
	12 . . .			52.89
	13 . . .			52.90
	19 . . .			52.91
	24 . . .			52.77
	25 . . .			52.95
July	1 . . .			52.61
October	1 . . .			52.64
	7 . . .			53.16
	9 . . .			52.84

Lalande, (28891.)

		h.	m.	s.
May	2 . . .	15	45	0.82

ζ Ursæ Minoris.

		h.	m.	s.
April	4 . . .	15	49	32.59
	15 . . .			31.99
	29 . . .			32.18
May	9 . . .			31.92
	16 . . .			31.69
	20 . . .			31.87
	21 . . .			31.87
	28 . . .			31.51
June	3 . . .			31.28
	4 . . .			31.48
	5 . . .			31.78
	10 . . .			31.58
	11 . . .			31.46
	12 . . .			31.57
	24 . . .			31.45
	26 . . .			31.24
July	1 . . .			32.35

β^1 Scorpii.

		h.	m.	s.
April	15 . . .	15	56	43.24
	29 . . .			43.34
May	9 . . .			43.29
	16 . . .			43.24
	20 . . .			43.19
	28 . . .			43.19
June	3 . . .			43.06
	10 . . .			43.29

Comet-star, δ + 70° 7'.

		h.	m.	s.
June	12 . . .	15	58	40.55
	24 . . .			40.78

Comet-star, δ + 70° 8'.

		h.	m.	s.
June	12 . . .	15	59	42.59
	24 . . .			42.88

Comet-star, δ + 69° 38'.

		h.	m.	s.
July	1 . . .	15	59	32.88

Comet-star, δ + 69° 39'.

		h.	m.	s.
July	1 . . .	15	59	54.41

c^1 Scorpii.

		h.	m.	s.
June	4 . . .	16	3	0.44
July	11 . . .			0.25

δ Ophiuchi.

		h.	m.	s.
April	15 . . .	16	6	29.32
	29 . . .			29.19
May	20 . . .			29.31
	27 . . .			29.32
June	5 . . .			29.24
	24 . . .			29.13
	25 . . .			29.26
July	5 . . .			29.19
	29 . . .			29.23

Anonyma, δ — 24° 44'.

		h.	m.	s.
May	9 . . .	16	6	43.18
July	1 . . .			42.87

Comet Star, δ + 71° 19'.

		h.	m.	s.
June	12 . . .	16	15	55.35

α Scorpii.

		h.	m.	s.
May	20 . . .	16	20	12.93
June	5 . . .			12.91
	25 . . .			13.04
July	1 . . .			12.54
	5 . . .			12.77
	11 . . .			14.75
	20 . . .			13.08
August	14 . . .			13.09

η Draconis.

		h.	m.	s.
April	29 . . .	16	21	58.38

Groombridge, (2356.)

		h.	m.	s.
June	12 . . .	16	26	59.19

ε Scorpii.

		h.	m.	s.
June	4 . . .	16	40	27.37
	5 . . .			27.18
	29 . . .			27.05
July	1 . . .			26.81
	11 . . .			27.24
	29 . . .			27.17
August	14 . . .			27.32

Comet Star, δ + 73° 9'.

		h.	m.	s.
June	5 . . .	16	56	37.17

(2411,) Groombridge.

		h.	m.	s.
June	4 . . .	16	59	16.86

ε Ursæ Majoris.

		h.	m.	s.
May	28 . . .	17	1	31.22
June	19 . . .			31.42
	29 . . .			31.34
July	20 . . .			30.40

η Ophiuchi.

		h.	m.	s.
April	29 . . .	17	1	46.77
July	19 . . .			46.83

2418, Groombridge.

		h.	m.	s.
June	3 . . .	17	3	33.90

2420, Groombridge.

		h.	m.	s.
June	3 . . .	17	4	29.60

A Ophiuchi.

		h.	m.	s.
June	29 . . .	17	6	7.27
July	29 . . .			7.50
August	7 . . .			7.85

Ophiuchi, (5813.)

		h.	m.	s.
July	29 . . .	17	7	0.23
August	7 . . .			0.21

Ophiuchi, (5815.)

		h.	m.	s.
August	14 . . .	17	7	14.13

α Herculis.

		h.	m.	s.
May	28 . . .	17	7	48.44
June	10 . . .			48.49
	12 . . .			48.49
	19 . . .			48.34
July	1 . . .			48.23
	11 . . .			50.41
	19 . . .			48.48
	20 . . .			48.42
November	13 . . .			48.58

Ophiuchi, (5831.)

		h.	m.	s.
August	7 . . .	17	8	52.03

Comet-star, δ + 73°. 35.

		h.	m.	s.
June	3 . . .	17	10	19.73
				19.53

ξ Ophiuchi.

		h.	m.	s.
April	29 . . .	17	12	0.99

Ophiuchi, (5846)

		h.	m.	s.
July	11 . . .	17	12	31.74

θ Ophiuchi.

		h.	m.	s.
June	29 . . .	17	12	47.74
July	19 . . .			48.05
August	7 . . .			48.01
	9 . . .			47.93

Comet-star, δ + 73° 36'.

		h.	m.	s.
June	11 . . .	17	17	42.40
	12 . . .			42.90

υ Scorpii.

		h.	m.	s.
May	21	17	20	34.39
	28			34.13
July	11			36.16
August	9			33.97

λ Scorpii.

		h.	m.	s.
May	21	17	23	25.81
July	11			27.53
August	9			25.39

β Draconis.

		h.	m.	s.
May	9	17	27	2.88
	21			2.80
	27			2.54

ε Ophiuchi.

		h.	m.	s.
May	9	17	27	58.41
	21			58.44
	27			58.11
	28			58.30
June	3			58.18
	5			58.21
	10			58.36
	12			58.22
	19			58.29
July	1			58.08
	11		28	0.36
	19			58.31
	20			58.29
	23			58.39
	29			58.35
August	14			58.35
September	4			58.28
November	1			58.37
	4			(58.42)
	14			58.37

ο Serpentis.

		h.	m.	s.
May	27	17	32	58.93

Serpentis, (6066.)

		h.	m.	s.
May	28	17	47	57.32
June	10			57.47
July	11			59.46
	29			57.44
August	9			57.44

4 Sagittarii.

		h.	m.	s.
April	29	17	50	38.15

Sagittarii, (6080.)

		h.	m.	s.
June	3	17	50	59.58
	4		51	0.50
	7		50	59.85
August	14		50	59.82

γ Draconis.

		h.	m.	s.
June	3	17	53	7.37
August	27			7.39
September	4			7.25

Sagittarii, (6161).

		h.	m.	s.
August	7	18	2	34.11
	9			34.06
	16			34.20

μ¹ Sagittarii.

		h.	m.	s.
April	29	18	4	47.68
May	28			47.42
June	3			47.42
	5			47.61
	10			47.57
	24			47.73
	29			47.45
July	1			47.15
	11			49.63
	19			47.57
	23			47.68
	29			47.51
August	2			47.57
	12			47.53
	14			47.56
	27			47.57
	28			47.61
September	4			47.57

ε Sagittarii.

		h.	m.	s.
May	28	18	14	12.66
June	3			12.66
August	9			12.68

δ Ursæ Minoris.

		h.	m.	s.
May	28	18	20	43.65
June	10			43.06
	29			45.00
July	1			45.76
	11			46.13
	19			43.69
	23			41.71
	29			43.61
August	2			44.26
	7			45.27
	9			44.34
	14			42.89
	26			43.81
	28			45.42

Sagittarii, (6304.)

		h.	m.	s.
June	3	18	24	3.94

Sagittarii, (6314.)

		h.	m.	s.
June	3	18	25	21.89

α Lyræ.

		h.	m.	s.
May	27	18	31	51.48
	28			51.52
June	3			51.60
	5			51.41
	10			51.63
	24			51.81
	29			51.53
July	1			51.20
	11			53.41
	19			51.49
	23			51.36
	24			51.47
	27			51.48
August	2			51.48

α Lyræ—Continued.

		h.	m.	s.
August	7	18	31	51.52
	12			51.31
	14			51.42
	16			51.49
	26			51.52
	27			51.52
September	4			51.57
November	26			51.52

φ Sagittarii.

		h.	m.	s.
May	27	18	36	15.48
	28			16.74

β¹ Lyræ.

		h.	m.	s.
June	10	18	44	32.66
	29			32.53
July	11			34.45
	19			32.47
	23			32.41
	24			32.45
	27			32.41
	29			32.53
August	2			32.46
	7			32.42
	9			32.47
	14			32.34
	16			32.49
	26			32.50
	27			32.42
	28			32.37
September	4			32.48
	17			32.44

ο Sagittarii.

		h.	m.	s.
June	24	18	55	42.01
August	28			41.38

Lalande, (35540.)

		h.	m.	s.
September	23	18	55	21.69

ζ Aquilæ.

		h.	m.	s.
June	24	18	58	31.11
July	1			30.68
	11			32.96
	19			30.95
	23			30.94
	24			30.86
	27			30.97
August	14			30.93
	26			31.01
September	17			30.92
	21			30.94
	27			30.84

π Sagittarii.

		h.	m.	s.
May	28	19	0	50.32
June	24			50.78

δ Aquilæ.

		h.	m.	s.
July	1	19	17	55.71
	19			55.96
	23			56.09
	24			55.94
	29			56.02

δ Aquilæ—Continued.

		h.	m.	s.
August	2	19	17	56.02
	7			56.06
	9			56.04
	12			56.10
	14			56.05
	26			55.97
	27			56.01
	28			56.01
	30			56.04
September	3			56.04
	16			56.06
	21			56.03
	23			56.18
	27			56.14
October	1			55.90
	5			55.97

h² Sagittarii.

		h.	m.	s.
July	23	19	27	34.54

e² Sagittarii.

		h.	m.	s.
July	23	19	33	56.24

γ Aquilæ.

		h.	m.	s.
July	19	19	39	7.60
	23			7.60
	24			7.65
	27			7.66
	29			7.60
August	2			7.65
	7			7.61
	9			7.60
	12			7.64
	14			7.52
	16			7.63
	27			7.64
	28			7.66
	30			7.62
September	3			7.54
	16			7.64
	17			7.68
	21			7.64
	23			7.67
	27			7.55
October	1			7.57
	5			7.58
	7			7.56
	9			7.56

α Aquilæ.

		h.	m.	s.
July	19	19	43	27.82
	23			27.69
	24			27.76
	27			27.76
	29			27.74
August	2			27.72
	7			27.75
	9			27.70
	12			27.85
	14			27.77
	16			27.80
	26			27.69
	27			27.71
	28			27.74
September	3			27.76
	16			27.78
	17			27.66
	21			27.71

ε Aquilæ—Continued.

		h.	m.	s.
September	23	19	43	27.76
	27			27.69
October	1			27.70
	3			28.06
	5			27.72
	7			27.73
	9			27.68

β Aquilæ.

		h.	m.	s.
July	19	19	47	56.65
	23			56.67
	24			56.59
	27			56.64
	29			56.62
August	2			56.67
	7			56.67
	9			56.58
	12			56.69
	14			56.70
	16			56.61
	26			56.58
	27			56.67
	28			56.61
September	3			56.70
	17			56.65
	21			56.61
	23			56.59
	27			56.59
October	1			56.58
	3			57.06
	5			56.64
	7			56.64
	9			56.58

α² Capricorni.

		h.	m.	s.
July	24	20	9	43.76
August	9			43.62
	30			44.68
September	21			43.60
October	3			43.98
	7			43.60
	9			43.62

β Capricorni.

		h.	m.	s.
July	24	20	12	34.69

α Cygni.

		h.	m.	s.
July	24	20	36	18.94
August	9			19.02
September	16			19.00
	21			18.98
	23			18.97
October	1			18.91
	9			19.13

η Capricorni.

		h.	m.	s.
October	9	20	55	51.75

61¹ Cygni.

		h.	m.	s.
August	9	21	0	10.58
October	1			10.48

ν Aquarii.

		h.	m.	s.
September	17	21	1	25.01

ζ Cygni.

		h.	m.	s.
July	24	21	6	33.28
August	9			33.18
September	17			33.12
	21			33.25
	23			33.19
October	1			33.16
	3			32.02
	22			33.09
	31			33.12
November	2			33.14

α Cephei.

		h.	m.	s.
August	9	21	14	59.89
September	21			59.67
October	22			59.43

Piscis Australis, (7458.)

		h.	m.	s.
October	3	21	20	4.19

β Aquarii.

		h.	m.	s.
July	24	21	23	39.52
September	17			39.54
	21			39.55
October	22			39.49

β Cephei.

		h.	m.	s.
September	23	21	26	42.16
October	9			42.58
	31			42.12
November	2			42.36

Weisse XXI, 662.

		h.	m.	s.
November	5	21	27	38.11

ε Capricorni.

		h.	m.	s.
July	24	21	28	40.37

κ Capricorni.

		h.	m.	s.
July	24	21	34	16.37

ε Pegasi.

		h	m	s.
July	24	21	36	49.07
August	9			49.14
September	21			49.08
	23			49.00
October	3			48.70
	7			49.06
	22			49.03
	31			49.15
November	1			49.13
	2			49.04
	5			49.00

α Aquarii

		h.	m.	s.
September	17	21	58	4.61
October	3			3.64
	7			4.57
	9			4.68
	31			4.68
November	1			4.67
	4			4.66
	5			4.65
	9			4.43

α Gruis.

		h.	m.	s.
November	13	21	58	44.87

Piscis Australis, (7714.)

		h.	m.	s.
September	23	22	1	20.75
November	5			20.50

λ Piscis Australis, (7750.)

		h.	m.	s.
September	23	22	5	48.15
November	1			47.98
	5			47.86

ζ Pegasi.

		h.	m.	s.
September	23	22	33	59.07
October	1			58.92
	3			58.60
	7			58.75
	9			58.83
	31			58.89
November	1			53.85
	2			58.92
	4			58.85
	5			58.90
	9			60.65
	13			58.89
	21			58 86

Piscis Australis, (7909.)

		h.	m.	s.
October	22	22	34	0.90
November	9			0.65

λ Aquarii.

		h.	m.	s.
November	13	22	44	47 10

α Piscis Australis.

		h.	m.	s.
September	21	22	49	21.00
October	3			20.58
	7			20.83
	22			21.08
	21			21.00
November	1			20.98
	4			20.93
	5			20.93
	9			20.86
	13			20.88
	21			20.96

α Pegasi.

		h.	m.	s.
October	3	22	57	17.46
	22			17.53
	31			17.44
November	2			17.36
	4			17.48
	5			17.42
	9			17.45
	13			17.36
	14			17.49
	21			17.56

φ Aquarii

		h.	m.	s.
November	13	23	6	33.02
	14			33.09

ψ² Aquarii.

		h.	m.	s.
November	13	23	11	9.24
	14			9.31

Weisse XXIII, 602.

		h.	m.	s.
November	13	23	29	9.69

ι Piscium.

		h.	m.	s.
November	1	23	32	14.15
	5			14.24
	9			14.03
	21			14.22
	30			14.07

γ Cephei.

		h.	m.	s.
October	3	23	33	14.24

Piscium, (8368.)

		h.	m.	s.
November	14	23	56	39.47

Polaris, R.A., 1h. 5m. 1s.

	hh.		°	'	"
March	24, 1.4	+	88	30	34.64

Polaris, S. P.

March	19, 1.4	+	88	30	36.14
April	30, 1.4				35.86
May	2, 1.4				35.04
	9, 1.4				35.75
	11, 1.4				35.03
	14, 1.4				35.96

γ Ceti, R.A., 2h. 35m. 32s.

January	12	+	2	36	(0.29)

α Ceti, R.A., 2h. 52m., 27s.

January	12	+	3	29	(51.74)

α Persei, R. A., 3h. 13m. 38s.

January	12	+	49	19	(19.31)

η Tauri, R.A., 3h. 38m. 34s.

January	4	+	23	38	13.85
	12				(10.68)
	23				13.39

γ¹ Eridani, A.R., 3h. 51m. 2s.

January	12	—	13	56	(18.58)

λ Tauri, R.A., 3h. 52m. 22s.

January	4	+	12	3	45.42

α Tauri, R.A., 4h. 27m. 19s.

January	12	+	16	12	(10.64)
					10.45

Lalande, 9106, R.A., 4h. 44m. 5s.

January	23	+	43	48	34.58

α Aurigæ, R.A., 5h. 5m. 37s.

January	4	+	45	50	20.34
	12				(19.37)

β Orionis, R.A., 5h. 7m. 20s.

February	3	—	8	22	(41.37)

β Tauri, R.A., 5h. 16m. 49s.

January	4	+	28	28	31.03
	12				(28.27)
February	3				(31.92)
	7				30.47

δ Orionis, R.A., 5h. 24m. 21s.

January	4	—	0	24	52.91
February	3				(49.88)

ε Orionis, R.A., 5h. 28m. 36s.

			°	'	"
January	12	—	1	18	(8.11)
February	7				8.29

α Columbæ, R.A., 5h. 34m. 13s.

January	4	—	34	9	23.41

α Orionis, R.A., 5h. 47m. 3s.

January	12	+	7	22	(27.87)
February	3				(30.11)

51 (Hev.) Cephei, R.A., 6h. 28m. 34s.

	hh.				
February	6, 1.4	+	87	15	22.03

51 (Hev.) Cephei, S. P.

	hh.				
July	30, 1.4	+	87	15	20.83

α Canis Majoris, R A., 6h. 38m. 32s.

January	12	—	16	30	(49.38)
February	3				(43.61)

ε Canis Majoris, R.A., 6h. 52m. 44s.

February	6	—	28	46	16.05
March	10				16.45

δ Geminorum, R.A., 7h. 11m. 10.

January	12	+	22	15	(12.27)
February	6				13.70
	10				13.51
March	31				12.57

α¹ Geminorum, R.A., 7h. 25m. 0s.

February	6	+	32	12	41.32
	10				41.29

α² Geminorum, R.A., 7h. 25m. 1s.

February	6	+	32	12	44.11
	10				43.68
March	10				42.66

α Canis Minoris, R.A., 7h. 31m. 27s.

February	6	+	5	36	21.01

Aquarii, (2551,) R.A., 7h. 35m. 23s.

March	31	+	24	45	10.76

β Geminorum, R.A., 7h. 36m. 8s.

January	27	+	28	23	1.53
February	6				2.51
	10				1.78
March	10				1.16

ε Hydræ, R.A., 8h. 38m. 50s.

			°	'	"
February	26	+	6	57	57.52
March	23				57.55
	31				56.27

ι Ursæ Majoris, R.A., 8h. 48m. 55s.

February	6	+	48	37	35.49
March	23				35.54
April	5				35.23

α Hydræ, R A., 9h. 20m. 13s.

April	6	—	8	0	41.02

Leonis, (3250,) R.A., 9h. 23m. 51s.

February	6	+	11	57	41.42

ε Leonis, R.A., 9h. 37m. 20s.

February	6	+	24	27	45.25
March	24				44.07
April	6				42.64

α Leonis, R.A., 10h. 0m. 23s.

March	24	+	12	41	54.59
April	20				53.37

Weisse X, — 456, R A., 10h. 26m. 1s.

May	2	—	3	30	13.29

(°) R.A., 10h. 26m. 21s.

April	30	—	4	6	11.73

(°) R.A., 10h. 28m. 10s.

April	30	—	3	49	50.64

Weisse X, — 577, R.A., 10h. 28m. 55s.

May	2	—	4	3	13.06

(°) R.A., 10h. 28m. 55.

April	30	—	4	8	25.88

Weisse X, — 637, R.A., 10h. 35m. 27.

May	2	—	3	37	24.84

Weisse X, — 801, R.A., 10h. 45m. 2s.

April	30	—	0	44	33.72
May	2				36.73

(°) R.A., 10h. 46m. 2s.

April	30	—	0	33	26.87

Weisse X, — 859, R A., 10h. 46m. 55s.

April	30	—	0	43	16.77
May	2				15.83

(°) R.A., 10h. 47m. 37s.

			°	'	"
April	30	—	0	37	35.49

Lalande, 21026, R.A., 10h. 48m. 27s.

April	30	—	0	49	10.96
May	2				10.59

α Ursæ Majoris, R.A., 10h. 54m. 26s.

November	2	+	62	33	34.53

δ Leonis, R.A., 11h. 6m. 7s.

March	29	+	21	20	40.15

β Leonis, R.A., 11h. 41m. 24s.

April	30	+	15	24	36.94

η Virginis, R.A., 12h. 12m. 14s.

April	5	+	0	10	2.41

β Corvi, R.A., 12h. 26m. 31s.

April	30	—	22	33	(63.91)
May	2				58.77
	11				61.22

α Virginis, R A., 13h. 17m. 18s.

June	4	—	10	22	35.50

Bessel Z., — 460, R.A., 13h. 38m. 18s.

May	2	+	22	32	24.74

(°) R.A., 13h. 41m. 33s.

May	2	+	22	46	15.26

η Ursæ Majoris — 13h. 41m. 37s.

May	14	+	50	3	49.83
June	4				48.92

Bessel Zone, 412, R.A., 13h. 42m. 1s.

April	20	+	23	1	57.98

(°) R.A., 13h. 43m. 16s.

May	2	+	22	42	40.76

(°) R.A., 13h. 50m. 22s.

April	19	+	24	6	13.99
	20				14.41

Bessel Zone, 412, R.A., 13h. 51m. 32s.

April	20	+	23	36	4.51

Bessel Zone, 412; R.A., 13h. 52m. 44s.

April	20	+	23	39	35.30

(°) R.A., 13*h.* 52*m.* 58*s.*

			°	′	″
April	19	+	24	1	48.04
May	2				47.51

B. Z., 412, R.A., 13*h.* 54*m.* 31.5*s.*

			°	′	″
April	19	+	23	55	57.28
May	2				56.47

(°) R.A., 13*h.* 59*m.*

			°	′	″
April	19	+	23	54	59.39

Bessel Z., 412, R.A., 13*h.* 59*m.* 23*s.*

			°	′	″
April	19	+	24	6	27.47
May	2				25.78

α Bootis, R.A., 14*h.* 8*m.* 49*s.*

			°	′	″
April	30	+	19	57	55.08
May	2				56.15
June	4				56.73
	5				56.80

ε Bootis, R.A., 14*h.* 38*m.* 26*s.*

			°	′	″
April	3	+	27	42	33.24
	5				33.03
June	11				31.39
	22				33.61

Libræ, (4894,) R.A., 14*h.* 42*m.* 24*s.*

			°	′	″
June	20	—	15	22	11.65
	22				12.82

α² Libræ, R.A., 14*h.* 42*m.* 35*s.*

			°	′	″
June	4	—	15	24	54.51
	20				54.29
	22				54.29

β Ursæ Minoris, R.A., 14*h.* 51*m.* 12*s.*

			°	′	″
April	30	+	74	46	5.63
May	14				6.26
June	5				5.30
	11				(9.80)

β Libræ, R.A., 15*h.* 8*m.* 56*s.*

			°	′	″
March	29	—	8	49	32.64
April	30				34.56
May	14				33.55
June	4				33.03
	5				34.36
	11				33.56
	16				31.45
	20				32.66

α Coronæ Borealis, R.A., 15*h.* 28*m.* 20*s.*

			°	′	″
May	14	+	27	13	21.52
	19				22.61
June	4				21.75
	11				21.10

α Serpentis, R.A., 15*h.* 36*m.* 53*s.*

			°	′	″
May	19	+	6	54	5.34
June	11				4.90

ζ Ursæ Minoris, R.A., 15*h.* 49*m.* 32*s.*

			°	′	″
May	18	+	78	15	12.35

β¹ Scorpii, R.A., 15*h.* 56*m.* 3*s.*

			°	′	″
May	14	—	19	23	24.70
	18				24.06
June	11				24.37

δ Ophiuchi, R.A., 16*h.* 6*m.* 29*s.*

			°	′	″
May	14	—	3	18	14.63
June	11				12.97

α Scorpii, R.A., 16*h.* 20*m.* 13*s.*

			°	′	″
May	18	—	26	5	38.64
June	11				38.55

η Ophiuchi, R.A., 17*h.* 1*m.* 47*s.*

			°	′	″
July	3	—	15	32	1.95

Ophiuchi, (5846) R.A., 17*h.* 12*m.* 30*s.*

			°	′	″
July	3	—	24	50	38.94

θ Ophiuchi, R.A., 17*h.* 12*m.* 48*s.*

			°	′	″
July	3	—	24	50	38.94

α Ophiuchi, R.A., 17*h.* 27*m.* 58*s.*

			°	′	″
July	3	+	12	40	24.57

Sagittarii, (6067) R.A, 17*h.* 50*m.* 38*s.*

			°	′	″
July	2	—	23	47	47.70
	3				47.99

γ Draconis, R.A., 17*h.* 53*m.* 7*s.*

			°	′	″
July	5	+	51	30	30.15

μ¹ Sagittarii, R.A., 18*h.* 4*m.* 47*s.*

			°	′	″
July	3	—	21	5	31.85
	5				33.13

δ Ursæ Minoris, R.A., 18*h.* 20*m.* 44*s.*

			°	′	″
July	30	+	86	35	50.76

α Lyræ, R.A., 18*h.* 31*m.* 51*s.*

			°	′	″
July	3	+	38	38	49.17
	5				48.64

β Lyræ, R.A., 18*h.* 44*m.* 32*s.*

			°	′	″
July	3	+	33	11	29.45
	5				29.22
	30				29.31

ζ Aquilæ, R.A., 18*h.* 58*m.* 31*s.*

			°	′	″
June	18	+	13	38	40.21
July	30				39.25

α Aquilæ, R.A., 19*h.* 43*m.* 28*s.*

			°	′	″
September	28	+	8	28	33.25

β Aquilæ, R.A., 19*h.* 47*m.* 57*s.*

			°	′	″
September	24	+	6	2	10.28
	27				10.56
	28				8.10

α¹ Capricornii, R.A., 20*h.* 9*m.* 20*s.*

			°	′	″
September	24	—	12	58	2.65

α² Capricornii, R.A., 20*h.* 9*m.* 43*s.*

			°	′	″
September	24	—	13	0	19.37
	27				19.11
	28				21.92

β Capricornii, R.A., 20*h.* 12*m.* 34*s.*

			°	′	″
September	27	—	15	15	2.00

Capricornii, (7134,) 20*h.* 31*m.* 30*s.*

			°	′	″
September	27	—	18	39	45.21

α Cygni, R.A., 20*h.* 36*m.* 19*s.*

			°	′	″
September	27	+	44	44	48.41

61¹ Cygni, R.A., 21*h.* 0*m.* 10*s.*

			°	′	″
September	27	+	38	0	53.50
	28				52.78

61² Cygni, R.A., 21*h.* 0*m.* 10*s.*

			°	′	″
September	27	+	38	0	49.76
	28				49.20

Capricornii, (7374) R.A., 21*h.* 7*m.* 26*s.*

			°	′	″
October	25	—	15	47	29.34

ζ Cygni, R.A., 21*h.* 6*m.* 33*s.*

			°	′	″
September	28	+	29	36	49.76
November	5				50.86

α Cephei, R.A., 21*h.* 24*m.* 59*s.*

			°	′	″
September	24	+	61	57	5.73
	28				4.65

β Aquarii, R.A., 21*h.* 23*m.* 39*s.*

			°	′	″
September	24	—	6	13	41.14
	28				43.21
October	8				43.31
	25				41.36
November	5				41.60

β Cephei, R.A., 21*h.* 26*m.* 42*s.*

			°	′	″
September	24	+	69	54	10.61
October	25				9.84

γ Capric., (7525,) R.A., 21*h.* 31*m.* 46*s.*

			°	′	″
September	27	—	17	20	12.48
	28				13.66

ε Pegasi, R.A., 21*h.* 36*m.* 49*s.*

			°	′	″
September	24	+	9	11	24.67
October	8				24.06
November	5				23.31

δ Capric., (7850,) R.A., 21*h.* 38*m.* 45*s.*

			°	′	″
September	27	—	16	47	18.30
	28				19.76

Lalande, 42700, R.A., 21*h.* 47*m.* 16*s.*

			°	′	″
October	8	—	21	50	44.39
	11				44.14
	25				45.11
	27				45.43

(°) R.A., 21*h.* 48*m.* 14*s.*

			°	′	″
November	7	—	21	28	24.58

(°) R.A., 21*h.* 49*m.* 0*s.*

			°	′	″
October	8	—	21	50	42.51

(°) R.A., 21*h.* 50*m.* 56*s.*

			°	′	″
November	2	—	21	26	53.54
	5				54.73
	7				53.93

Aquarii, (7649,) R.A., 21*h.* 50*m.* 22*s.*

			°	′	″
October	8	—	21	53	43.84
	11				43.77
	25				45.10
	27				46.41

(°) R.A., 21*h.* 50*m.* 59*s.*

			°	′	″
November	2	—	20	43	6.85

Lalande, 42984, R.A., 21*h.* 55*m.* 49*s.*

			°	′	″
October	25	—	22	30	12.35
	27				14.40

(°) R.A., 21h. 57m. 34s.

		° ′ ″
November	2 . .	— 20 29 57.31
	5 . .	59.89
	7 . .	60.70

α Aquarii, R.A., 21h. 58m. 4s.

		° ′ ″
September	24 . .	— 1 2 45.32

(°) R.A., 21h. 59m. 28s.

		° ′ ″
November	7 . .	— 20 25 3.25

Lalande, 43106, R.A., 21h. 59m. 31s.

		° ′ ″
October	25 . .	— 22 19 17.89
	27 . .	18.83

θ Aquarii, (7773,) R.A., 22h. 8m. 55s.

		° ′ ″
September	28 . .	— 8 31 41.94

Aquarii, (7818,) R.A., 22h. 18m. 25s.

		° ′ ″
November	7 . .	— 17 30 6.55

Aquarii, (7819,) R.A., 22h. 18m. 25s.

		° ′ ″
November	7 . .	— 17 30 11.91

Aquarii, (7840,) R.A., 22h. 22m. 42s.

		° ′ ″
October	26 . .	— 11 26 37.28
	27 . .	36.98

ζ Pegasi, R.A., 22h. 33m. 59s.

		° ′ ″
October	27 . .	+ 10 2 59.73

Aquarii, (7970,) R.A., 22h. 44m. 47s.

		° ′ ″
October	27 . .	— 8 22 35.31

α Piscis Austral., R.A., 22h. 49m. 21s.

		° ′ ″
October	11 . .	— 30 24 56.42
	27 . .	58.93
November	2 . .	57.12

α Pegasi, R.A., 22h. 57m. 17s.

		° ′ ″
October	11 . .	+ 14 23 59.00

γ Cephei, S. P., R.A., 23h. 33m. 14s.

		° ′ ″
March	29 . .	+ 76 47 42.64
May	2 . .	43.80

Piscium, (8271,) R.A., 23h. 40m. 13s.

		° ′ ″
October	27 . .	— 3 35 39.18

Piscium, (8328,) R.A., 23h. 50m. 59s.

		° ′ ″
October	27 . .	— 4 23 16.07

α Cassiopeiæ, R. A., 0h. 32m. 25s.

		° ′ ″
November	14 . .	+ 55 42 50.17

Polaris, R A , 1h. 5m. 1s.

October	15 . .	+ 88 30 33.39
November	4 . .	34.80
	14 . .	33.15

Polaris, S. P.

September	3 . .	+88 30 35.61
October	4 . .	35.32
	8 . .	34.44
November	10 . .	36.74

α Aurigæ, R.A., 5h. 5m. 37s.

July	2 . .	+ 45 50 20.93

α Virginis, R.A., 13h. 17m. 18s.

July	19 . .	— 10 22 36.20

η Bootis, R A., 13h. 47m. 33s.

July	25 . .	+ 19 9 5.91

Centauri, (4686,) R.A., 13h. 57m. 52s.

June	5 . .	— 35 37 46.07
	10 . .	43.80
	11 . .	45.34

Hydræ, (4711,) R.A., 14h. 4m. 39s.

June	5 . .	— 25 54 17.84
	10 . .	17.34
	11 . .	18.80

α Bootis, R.A., 14h. 8m. 49s.

July	25 . .	+ 19 57 55.35

Hydræ, (4763,) R.A., 14h. 14m. 28s.

June	5 . .	— 27 3 44.73
	10 . .	43.67
	11 . .	44.72

Hydræ, (4784,) R.A., 14h. 19m. 24s.

June	5 . .	— 28 48 51.65
	10 . .	50.64
	11 . .	52.68

Bootis, (4812,) R.A., 19h. 26m. 2s.

June	5 . .	+ 38 58 0.30
	11 . .	0.29

Libræ, (4854,) R.A., 19h. 34m. 34s.

June	5 . .	— 24 21 17.28
	10 . .	16.36
	11 . .	17.32

(*) R.A., 14h. 38m.

		° ′ ″
June	3 . .	+ 27 9 7.80

ε Bootis, R.A., 14h. 38m. 26s.

July	25 . .	+ 27 42 33.18

Libræ, (4913,) R.A , 14h. 45m. 38s.

June	5 . .	— 24 1 29.83
	10 . .	29.60
	11 . .	30.02

Lalande, 27221, R.A., 14h. 49m. 8s.

August	26 . .	— 22 24 0.26

Hydræ, (4930,) R A., 14h. 49m. 50s.

June	5 . .	— 27 3 4.83
	10 . .	4.29
	11 . .	4.63

β Ursæ Minoris, R.A., 14h. 51m. 12s

June	3 . .	+ 74 46 5.81
November	8 . .	6.90

Hydræ, (4940,) 14h. 53m. 11s.

June	5 . .	— 27 27 44.98
	10 . .	44.63
	11 . .	44.27

(23) R.A., 14h. 53m. 43s.

June	30 . .	+ 59 7 45.07
July	1 . .	45.59
	3 . .	47.61
	5 . .	47.58

Lupi, (5009,) R.A., 15h. 5m. 27s.

June	5 . .	— 30 57 17.45
	10 . .	18.07
	11 . .	17.92

β Libræ, R.A., 15h. 8m. 56s.

July	11 . .	— 8 49 34.52
August	14 . .	34.84

(21) R.A., 15h. 18m. 14s.

June	30 . .	+ 64 54 18.58
July	5 . .	18.77

α Coronæ Borealis, R.A., 15h. 28m. 20s.

July	11 . .	+ 27 13 20.49

Lupi, (5160,) R.A., 15h. 30m. 15s.

June	5 . .	— 33 55 2.83

Lupi, (5173,) R.A., 15h. 33m. 9s.

June	5 . .	— 34 13 25.24

ζ Ursæ Minoris, R.A., 15h. 49m. 32s.

		° ′ ″
July	23 . .	+ 78 15 13.79

β^{1} Scorpii, R.A., 15h. 56m. 43s.

August	14 . .	— 19 23 24.74

(*) R.A., 15h. 59m.

June	13 . .	+ 69 39 46.54

(19) R.A., 15h. 59m. 33s.

June	13 . .	+ 69 37 50.39

(18) R.A., 15h. 59m. 43s.

July	1 . .	+ 70 8 26.50
	3 . .	28.33

(20) R.A., 15h. 59m. 54s.

June	13 . .	+ 69 38 35.33

2319, Groombridge, R.A , 16h. 5m.

June	11 . .	+ 70 39 46.60

Arg. Z., 115, 156, R. A., 16h. 8m. 21s.

June	11 . .	+ 70 43 24.47

Arg. Z., 115, 164, R.A., 16h. 15m. 46s.

June	10 . .	+ 71 12 17.75
	11 . .	17.11

Arg. Z., 115, 165, R.A., 16h. 15m. 56s.

June	10 . .	+ 71 18 35.76
	11 . .	36.50

α Scorpii, R.A., 16h. 20m. 13s.

August	14 . .	— 26 5 38.78

η Draconis, R.A., 16h. 21m. 58s.

June	3 . .	+ 61 51 16.35

2356, Groombridge, R.A., 16h. 27m.

June	11 . .	+ 71 43 5.05

(13) R.A., 16h. 56m. 37s.

June	11 . .	+ 73 9 4.72

Ursæ Min., (5769,) R.A., 16h. 59m. 18s.

June	5 . .	+ 73 21 10.22
	10 . .	10.95

ε Ursæ Minoris, R.A., 17h. 1m. 31s.

July	3 . .	+ 82 16 32.41
	10 . .	32.60

2418, Groombridge, R.A., 17h. 3m.

		° ′ ″
June	3 . .	+ 73 24 10.03
	5 . .	12.60
	11 . .	11.14

2420, Groombridge, R.A., 17h. 4m.

June	3 . .	+ 73 31 3.58
	5 . .	6.05
	11 . .	3.48

Ophiuchi, (5813,) R.A., 17h. 7m. 0s.

August	12 . .	— 26 19 27.41

α Herculis, R.A., 17h. 7m. 48s.

July	19 . .	+ 14 33 55.20
September	12 . .	55.28

(12) R.A., 17h. 17m. 43s.

June	3 . .	+ 73 35 (48.80)
	10 . .	53.89
	11 . .	53.32

Scorpii, (5901,) R.A., 17h. 20m. 34s.

August	9 . .	— 37 10 11.61
	12 . .	13.17

Scorpii, (5915,) R.A., 17h. 23m. 26s.

August	9 . .	— 36 59 16.95
	12 . .	19.32

β Draconis, R.A., 17h. 27m. 3s.

July	1 . .	+ 52 24 51.78
	11 . .	52.48
	24 . .	51.91
August	31 . .	52.29
September	12 . .	52.24
	13 . .	51.98

Serpentis, (6066,) R.A., 17h. 47m. 58s.

September	5 . .	— 23 54 43.68

γ Draconis, R.A., 17h. 53m. 7s.

July	3 . .	+ 51 30 30.89
	10 . .	30.97
	11 . .	30.31
	19 . .	30.32
	23 . .	31.11
	24 . .	31.09
August	9 . .	31.76
	12 . .	30.82
	28 . .	30.44
	29 . .	31.43
	30 . .	30.76
	31 . .	30.67
September	10 . .	31.14

μ^{1} Sagittarii, R.A., 18h. 4m. 48s.

August	28 . .	— 21 5 31.93
	29 . .	31.01

μ¹ Sagit, R A., 18h. 4m. 48s.—Cont'd.

			°	′	″
August	30	—	21	5	31.77
September	3				31.01
	4				32.65
	5				33.58
	6				32.46
	10				32.97
	11				34.20
	13				32.31
	17				32.53
	23				32.78

Sagittarii, (6304,) R.A., 18h. 24m. 4s.

August	9	—	24	12	46.05
	12				46.10

Sagittarii, (6314,) R.A., 18h. 25m. 22s.

August	12	—	24	19	51.66

α Lyræ, 18h. 31m. 52s.

June	10	+	38	38	49.04
July	11				49.21
	23				49.67
August	16				49.47
	28				49.16
	30				48.25
	31				49.64
September	3				48.68
	4				48.83
	6				50.24
	10				48.75
	11				48.30
	13				49.82
	16				49.52
	17				50.35
	23				50.02
	29				50.27

Sagittarii, (6461,) R.A., 18h. 48m. 47s.

October	12	—	21	17	52.65

Sagittarii, (6507,) R.A., 18h. 55m. 41s.

			°	′	″
August	16	—	21	57	20.49
	26				21.64
	28				19.90
	29				20.55
	30				20.60
	31				20.99
September	2				21.08
	3				20.58
	4				21.26
	5				20.85
	6				22.32
	10				20.96
	11				21.91
	16				20.32

ζ Aquilæ, R.A., 18h. 58m. 31s.

July	23	+	13	38	41.26
	9				40.27
August	23				40.87
October	1				40.66

δ Aquilæ, R.A., 19h. 17m. 56s.

August	9	+	2	49	12.92
	12				12.91
	23				12.64
	26				12.49
	31				11.84
September	2				11.73
	3				12.66
	6				11.34
	16				12.40
	17				13.12
	23				12.17
October	1				11.80

Sagittarii, (6726,) R.A., 19h. 30m. 48s.

August	29	—	23	45	48.06
September	4				45.33

Sagittarii, (6742,) R.A., 19h. 33m. 56s.

			°	′	″
September	16	—	16	28	14.37

γ Aquilæ, R.A., 19h. 39m. 8s.

September	24	+	10	15	5.92

α Aquilæ, R.A., 19h. 43m. 28s.

August	16	+	8	28	(36.23)
	23				34.60
September	2				34.80
	3				34.93
	6				33.81
	10				33.79
October	12				35.05

α² Capricorni, R.A., 20h. 9m. 44s.

September	16	—	13	0	20.14

α Cygni, R.A., 20h. 36m. 19s.

September	17	+	44	44	47.55
	24				47.55
October	14				48.28

61¹ Cygni, 21h. 0m. 10s.

October	3	+	38	0	53.69
	23				53.33
	29				53.02
	31				53.42

β Aquarii, R.A., 21h. 23m. 39s.

September	21	+	6	13	42.27

ε Pegasi, R.A., 21h. 36m. 49s.

			°	′	″
September	23	+	9	11	(25.10)
October	4				24.01
	7				24.68
	14				24.55
	15				23.13
	27				21.31

α Aquarii, R.A., 21h. 58m. 5s.

October	8	—	1	2	46.58
	9				44.23
November	9				44.42
	27				45.82

Piscis Austr., (7714,) R.A., 22h. 1m. 21s.

September	23	—	33	16	57.75
	24				58.23
October	2				55.92
	3				55.65
	4				58.30
	7				56.43

α Piscis Australis, R.A., 22h. 49m. 41s.

October	7	—	30	24	56.40
	9				57.11
November	6				57.26

α Pegasi, R.A., 22h. 57m. 17s.

October	4	+	14	23	56.98
November	6				58.05

Weisse XXIII, 602, R.A., 23h. 29m. 46s.

November	13	+	5	5	19.12
	14				16.75

ι Piscium, R.A., 23h. 32m. 14s.

November	6	+	4	48	50.51
	7				50.21
	15				51.09

α Andromedæ.

Date		R.A. h. m. s.	Dec. ° ′ ″
April	30	0 0 38.53	+28 15
May	1	38.55	
	11	38.53	47.20
November	5	38.58	47.12
	21	38.63	
	28	38.60	
	30	38.66	
December	5	38.52	
	11	38.42	
	17	38.39	
	21	38.58	
	27	38.45	41.54

γ Pegasi.

Date		R.A. h. m. s.	Dec. ° ′ ″
May	1	0 5 30.93	
November	5	30.97	
	21	30.91	
	28	31.03	
	30	30.82	
December	17	31.03	
	21	30.97	
	24	30.97	

α Cassiopeiæ.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	27	0 32 1.52	+55 42
May	11	1.45	49.80
November	5	1.42	51.49
	19	1.55	
	21	1.49	
	28	1.45	
December	5	1.41	
	24	1.52	

α Cassiopeiæ, S. P.

Date		R.A. h. m. s.	Dec. ° ′ ″
May	9	0 32 1.06	
	17	1.20	

Polaris.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	27	1 4 60.70	+88 30 36.45
February	10	60.20	33.65
	16	61.34	
	23	60.66	
March	19	61.00	34.43
	22	58.67	31.10
	23	59.36	
	24	61.39	34.63
	31	60.90	
April	20	61.84	
	30	60.56	35.22
May	3	59.79	33.61
	4	61.03	34.05
	11	61.81	37.42
	22	60.51	35.42
November	5	64.15	31.98
	19	59.27	37.99
	28	59.03	
December	5	63.33	(27.62)
	7	60.43	
	11	60.36	
	17	60.14	
	24	60.75	
	27	61.45	30.83

Polaris, S. P.

Date		R.A. h. m. s.	Dec. ° ′ ″
February	15	1 4 61.80	+88 30
	23	58.64	
March	7	61.37	39.71

Polaris, S. P.—Continued.

Date		R.A. h. m. s.	Dec. ° ′ ″
March	19	1 4 61.07	+88 30 34.32
April	19	61.83	35.95
May	2	60.89	35.49
	9	60.66	35.32
	17	59.67	40.33
	31	62.88	
June	5	60.70	
	11	60.73	
	18	61.55	35.35
July	16	59.66	
	18	59.74	
	24	63.84	35.09
	30	(58.90)	
August	25	61.15	36.31
September	1	62.94	
	15	60.19	
	18	59.10	
	24	61.03	
	25	63.71	
October	19	62.55	
	22	63.31	32.57
November	4	60.82	
	19	61.75	33.43

θ Ceti.

Date		R.A. h. m. s.	Dec. ° ′ ″
December	7	1 16 31.50	
	24	31.57	

μ Piscium.

Date		R.A. h. m. s.	Dec. ° ′ ″
December	24	1 22 20.03	

γ Piscium.

Date		R.A. h. m. s.	Dec. ° ′ ″
December	24	1 33 38.01	

α Arietis.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	27	1 58 43.60	+22 44 63.18
February	10	43.57	
	16	(43.96)	
May	3	43.51	
	22	43.63	

ξ² Ceti.

Date		R.A. h. m. s.	Dec. ° ′ ″
December	24	2 20 11.45	

γ Ceti.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	10	2 35 31.91	+ 2 35
	18	31.81	60.95
	27	31.82	64.53

Anonymous.

Date		R.A. h. m. s.	Dec. ° ′ ″
December	27	2 47 40.42	+ 7 54 36.82

α Ceti.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	4	2 54 26.57	+ 3 29
	10	26.36	
	18	26.83	51.99
February	3	26.61	57.32
December	31	26.59	

α Persei.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	4	3 13 38.32	+49 19
	10	38.36	
	18	38.41	
	23	38.13	21.11
February	3	38.12	21.86
May	22	38.23	
June	14	38.35	
	17	38.33	
	21	(38.42)	
December	27	38.41	17.22
	31	38.16	

η Tauri.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	4	3 38 34.64	+23 38 18.19
	10	34.52	
	18	34.66	12.93
	23	34.66	13.13
February	3	34.64	15.83
	9	34.44	17.11
	23	34.57	
December	31	34.57	

Anonymous.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	23	3 47 48.15	+36 2 37.60

γ¹ Eridani.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	2	3 51 (2.17)	+13 56
	10	1.91	
	11	1.99	
	18	1.89	22.49
February	3	1.96	18.64
	23	2.06	
December	27	1.98	
	31	1.99	

λ Tauri.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	4	3 52 22.64	+12 3 38.26

γ Tauri.

Date		R.A. h. m. s.	Dec. ° ′ ″
December	27	4 11 15.61	+15 15 43.05

ε Tauri.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	2	4 27 18.93	+16 12
	10	18.98	
	11	19.08	
	18	(18.82)	
	23	19.11	10.42
February	7	(19.25)	
	9	19.08	
	10	19.09	10.53
	16	19.12	13.83
	19	18.89	
	23	19.05	12.37
April	16	19.19	
	21	19.13	
	23		12.01
May	4	18.99	12.87
June	14	19.01	
	17	19.02	
	21	19.06	
December	11	19.10	9.93
	27	18.98	(16.64)

ι Tauri.

Date		R.A. h. m. s.	Dec. ° ′ ″
December	27	4 54 8.10	+21 22 17.95

α Aurigæ.

		R.A.	Dec.
		h. m. s.	° ′ ″
January	2	5 5 36.71	+45 50
	4	36.56	13.09
	11	(37.31)	
March	8	36.83	19.88
	31	36.94	
April	21	36.86	
May	2	36.83	
	4	36.50	23.72
	12	36.99	
	21	36.88	
	23	37.00	19.37
June	17	36.92	
	21	36.77	
July	15	36.95	
	16	36.89	
	22	36.97	
December	17	36.78	

β Orionis.

		R.A.	Dec.
February	3	5 7 19.84	— 8 23 41.25
	6	19.75	43.41
	12	19.80	
	19	19.85	41.46
	23	19.80	
May	2	19.80	
	4	19.91	
July	15	19.84	
	16	19.80	
	22	19.80	

β Tauri.

		R.A.	Dec.
January	2	5 16 48.97	+28 28
	4	48.84	34.07
	11	48.99	
	18	48.63	
February	3	48.64	32.83
	7	48.84	32.97
	12	48.65	
	19	48.69	36.11
	23	48.75	31.50
March	8	48.74	32.64
	19	48.71	
	31	48.79	
July	22	48.74	
December	11	48.77	31.11
	27	48.74	

δ Orionis.

		R.A.	Dec.
January	2	5 24 20.67	— 0 24
	11	20.64	
	18	20.57	
February	3	20.67	
	6	20.70	51.82
	7	20.46	
	12	20.78	
	19	20.63	
	23	20.58	
March	7	20.82	
	8	20.79	
	19	20.68	
	31	20.73	
July	22	20.76	

α Leporis.

		R.A.	Dec.
February	12	5 26 (7.14)	
	19	7.04	
March	7	6.93	
	8	6.99	
	19	6.94	
	31	6.92	

ε Orionis.

		R.A.	Dec.
		h. m. s.	° ′ ″
January	11	5 28 36.00	
	18	(35.81)	
February	7	36.23	
	12	36.22	
	19	36.35	
	23	36.22	
March	8	36.18	
	19	36.29	
	31	36.14	
July	22	36.16	
	29	36.12	

ζ Tauri.

		R.A.	Dec.
February	3	5 28 40.92	+21 2 47.04

α Columbæ.

		R.A.	Dec.
January	4	5 34 13.17	—34 9
	11	13.15	
February	7	13.10	27.84
	12	13.22	
	19	13.23	
	23	13.28	
March	7	13.15	
	8	13.18	24.12
December	11	13.09	

α Orionis.

		R.A.	Dec.
January	4	5 47 3.14	+ 7 22
	11	3.11	
	18	3.01	
February	3	3.21	
	12	2.97	
	19	3.10	
March	19	3.12	
	24	3.13	
	31	3.08	
July	15	3.20	
	16	3.14	
	18	3.14	
	22	3.04	
	29	3.11	
December	11	3.10	
	27	3.11	

μ Geminorum.

		R.A.	Dec.
January	27	6 13 53.09	+22 35 7.79
February	3	53.30	
	6	53.14	
March	24	53.04	10.84
	30	53.14	
	31	53.12	10.83

γ Geminorum.

		R.A.	Dec.
February	3	6 29 2.70	+16 31 21.14
March	31	2.77	

ξ Geminorum.

		R.A.	Dec.
March	31	6 36 52.22	+13 2 11.93

α Canis Majoris.

		R.A.	Dec.
		h. m. s.	° ′ ″
January	4	6 38 32.17	—16 30 (44.94)
	18	32.31	
	9	32.45	
February	12	32.36	
	16	32.34	46.23
March	7	32.22	
	19	32.14	
	22	32.18	
	24	32.18	50.94
	30	32.27	
April	2	32.29	51.01
May	19	32.47	46.94
	21	32.38	46.94
	23	32.25	51.24
June	18	32.15	
	22	32.07	
July	15	32.19	
	17	32.10	
	18	32.32	51.25
	22	32.38	
	29	32.40	
August	12	32.27	

ε Canis Majoris.

		R.A.	Dec.
January	4	6 52 43.86	—28 46 15.23
February	6	43.94	15.76
	12	43.86	
	16	43.83	
March	7	43.82	
	24	43.87	18.90
	31	43.79	16.27
April	2	43.79	17.53
	11	43.77	

δ Geminorum.

		R.A.	Dec.
January	26	7 11 9.57	+22 15
	27	9.64	13.79
March	30	9.65	
	31	9.58	16.16
April	2	9.64	
	11	9.62	15.24
	16	9.55	

α² Geminorum.

		R.A.	Dec.
January	26	7 25 1.27	+32 12
	27	1.01	
February	6	1.36	45.26
	9	1.43	
	10	1.32	44.30
March	30	1.25	
April	2	1.31	42.42
	11	1.26	44.10
	16	1.30	45.17
August	26	1.18	

α Canis Minoris.

		R.A.	Dec.
January	26	7 31 26.83	+ 5 36
	27	26.82	
February	6	26.73	22.31
	9	26.98	
	10	26.80	
March	30	26.82	
April	2	(27.02)	19.77
	11	(26.98)	20.53
	16	26.80	
June	21	26.78	
	22	26.78	
July	22	26.85	

α Canis Minoris—Continued.

		R.A. h. m. s.	Dec ° ′ ″
August	16	7 31 26.73	+ 5 36
	24	26.85	
	26	26.89	22.82

π Geminorum.

		R.A. h. m. s.	Dec ° ′ ″
March	31	7 35 23.13	+24 45 12.84

β Geminorum.

		R.A. h. m. s.	Dec ° ′ ″
January	26	7 36 7.78	+28 22
	27	7.74	
February	9	7.78	
	10	7.66	
March	30	7.78	
April	2	7.79	60.49
	11	7.77	
	16	7.73	64.05
August	12	7.77	
	24	7.68	
	26	7.73	62.76

15 Argus.

		R.A. h. m. s.	Dec ° ′ ″
March	30	8 1 9.37	—23 52
April	2	9.37	29.79
	7	9.35	29.08
	11	9.36	30.15
	16	9.36	28.78

θ Cancri.

		R.A. h. m. s.	Dec ° ′ ″
February	6	8 23 2.31	+18 35 54.87

δ Cancri.

		R.A. h. m. s.	Dec ° ′ ″
February	6	8 36 9.20	+18 42 8.68
April	2	9.39	7.67

ε Hydræ.

		R.A. h. m. s.	Dec ° ′ ″
January	23	8 38 49.71	+ 6 57
April	11	49.77	56.71
	16	49.82	58.38
	19	49.73	55.51
May	2	49.70	56.97

ι Ursæ Majoris.

		R.A. h. m. s.	Dec ° ′ ″
March	24	8 48 54.74	+48 37 35.33
April	7	54.77	38.52
	11	54.84	38.13
	16	54.77	36.92
	19	54.52	35.46
May	2	54.72	36.65
September	9	54.78	

α Cancri.

		R.A. h. m. s.	Dec ° ′ ″
April	2	8 50 16.47	+12 26 6.97

α Hydræ.

		R.A. h. m. s.	Dec ° ′ ″
February	9	9 20 12.77	— 8 0 39.32
March	24	13.08	
	30	12.75	40.21
	10	12.96	41.23

α Hydræ—Continued.

		R.A. h. m. s.	Dec. ° ′ ″
April	11	9 20 12.94	— 8 0
	14	12.83	
	16	12.85	
	19	12.99	40.89
May	1	12.95	39.41
	2	13.07	39.59
September	9	12.91	
	16	12.91	

ξ Leonis.

		R.A. h. m. s.	Dec. ° ′ ″
February	6	9 23 51.42	+11 57 43.23

ο Leonis.

		R.A. h. m. s.	Dec. ° ′ ″
February	6	9 33 8.51	+10 34 22.10
April	2	8.43	20.07

ε Leonis.

		R.A. h. m. s.	Dec. ° ′ ″
January	23	9 37 19.73	+24 27
February	9	19.63	
	19	19.55	42.68
March	24	19.44	47.07
	30	19.61	43.66
April	7	19.63	47.55
	10	19.53	45.80
	14	19.57	
	19	19.68	47.32
May	2	19.56	46.59
September	9	19.60	
	10	19.68	

η Leonis.

		R.A. h. m. s.	Dec. ° ′ ″
April	2	9 59 8.93	+17 29 33.36

α Leonis.

		R.A. h. m. s.	Dec. ° ′ ″
February	15	10 0 22.68	+12.41
March	22	22.76	56.66
	24	22.77	55.03
April	7	22.70	56.38
	10	22.71	53.45
	19	22.72	54.28
May	19	22.67	58.07
June	22	22.95	
July	19	22.90	
September	9	22.63	
	10	22.73	
	12	22.70	
	16	22.68	
	24	22.71	52.63

Anonymous.

		R.A. h. m. s.	Dec. ° ′ ″
May	2	10 28 8.88	— 3 49 48.99

Anonymous.

		R.A. h. m. s.	Dec. ° ′ ″
May	2	10 29 42.99	— 3 28 12.33

Weisse X, 637.

		R.A. h. m. s.	Dec. ° ′ ″
May	2	10 35 27.06	— 3 37 21.09

Weisse X, 859.

		R.A. h. m. s.	Dec. ° ′ ″
May	2	10 45 54.37	— 0 43 12.74

Lalande, 21026.

		R.A. h. m. s.	Dec. ° ′ ″
May	2	10 48 26.97	— 0 49 6.50

3768, Leonis.

		R.A. h. m. s.	Dec. ° ′ ″
March	7	10 52 48.85	+ 4 25 18.09

α Ursæ Majoris.

		R.A. h. m. s.	Dec. ° ′ ″
February	12	10 54 (25.32)	+62 33
	15	25.66	
	23	25.70	
March	30	(25.27)	31.98
April	19	25.49	33.63
May	4	25.45	35.59
	19	(25.35)	37.37
June	5	25.67	
August	27	25.51	32.68
September	4	25.66	
	16	25.83	

α Ursæ Majoris, S. P.

		R.A. h. m. s.	Dec. ° ′ ″
September	27	10 54 25.55	
November	3	25.38	

χ Leonis.

		R.A. h. m. s.	Dec. ° ′ ″
March	7	10 57 16.52	

δ Leonis.

		R.A. h. m. s.	Dec. ° ′ ″
February	23	11 6 7.49	+21 20
March	30	7.50	41.11
April	5	7.39	44.23
	19	7.47	41.02
May	2	7.54	
	4	7.24	44.12
	19	7.42	43.86
June	5	7.45	

δ Hydræ et Crateris.

		R.A. h. m. s.	Dec. ° ′ ″
February	15	11 11 50.66	—13 58
	23	50.83	
March	9	50.62	
	30	50.60	4.71
April	19	50.61	3.76
May	19	50.63	2.66
June	5	50.53	

σ Leonis.

		R.A. h. m. s.	Dec. ° ′ ″
April	5	11 13 23.89	+ 6 51 4.91
May	2	24.15	5.52

τ Leonis.

		R.A. h. m. s.	Dec. ° ′ ″
April	5	11 20 12.97	+ 3 40 54.38

υ Leonis.

		R.A. h. m. s.	Dec. ° ′ ″
March	9	11 29 16.03	+ 0 0 16.30

β Leonis.

		R.A. h. m. s.	Dec. ° ′ ″
February	15	11 41 24.25	+15 24
March	22	24.17	
April	5	24.21	42.71
	14	24.42	36.30
	19	24.29	37.19
May	4	24.16	38.51
	9	24.16	36.24
June	5	24.33	
August	27	24.39	
October	15	24.27	
	24	24.34	

β Virginis.

		R.A.	Dec.
March	9	11 42 52.81	

γ Ursæ Majoris.

		R.A.	Dec.
March	22	11 45 55.00	
April	19	54.85	
June	5	55.02	
August	27	54.84	
October	15	55.03	
	22	54.86	
	24	54.92	

η Virginis.

		R.A.	Dec.
April	5	12 12 13.91	+ 0 10 3.75
May	2	13.96	1.67
	4	13.94	
	9	13.82	3.74

β Corvi.

		R.A.	Dec.
February	15	12 26 30.86	—22 33
March	7	30.99	
May	9	30.85	57.65
	17	30.81	
	23	30.87	
	31	30.91	
June	5	30.85	
	11	30.86	
	18	30.87	

γ Virginis.

		R.A.	Dec.
April	5	12 34 3.51	— 0 37 35.95
May	31	3.62	

12 Canum Venaticorum.

		R.A.	Dec.
September	1	12 49 0.14	

α Virginis.

		R.A.	Dec.
May	31	13 17 (17.39)	
July	18	17.64	
August	25	17.59	
September	5	17.71	
	15	17.64	

Anonymous.

		R.A.	Dec.
May	2	13 41 32.17	+22 46 2.78

η Ursæ Majoris.

		R.A. h. m. s.	Dec. ° ′ ″
March	19	13 41 37.36	+50 3 50.58
April	11	37.43	
	19	37.47	
May	9	37.45	
	17	37.49	44.42
July	16	37.54	
	18	37.45	
	24	37.33	48.98
September	5	37.39	
	18	37.42	
	25	27.44	52.91
November	19	37.41	52.01

Anonymous.

		R.A.	Dec.
May	2	13 43 16.08	+22 42 43.92

η Bootis.

		R.A.	Dec.
March	7	13 47 32.50	+19 9 5.71
April	11	32.50	
May	9	32.49	
	17	32.45	6.77
June	30	32.57	
September	5	32.50	
November	13	32.54	
	19	32.51	(11.59)

Lalande, (25674)

		R.A.	Dec.
April	19	13 50 20.77	+24 6 14.88

Anonymous.

		R.A.	Dec.
May	2	13 53 31.16	+28 55 58.19

Anonymous.

		R.A.	Dec.
May	2	13 56 24.48	+23 49 52.88

Anonymous.

		R.A.	Dec.
May	2	13 59 3.68	+23 55 37.15

Anonymous.

		R.A.	Dec.
April	19	13 59 22.53	+24 6 28.16

α Bootis.

		R.A.	Dec.
March	7	14 8 49.17	+19 57
	19	49.26	59.84
April	11	(48.32)	
May	9	49.34	
	15	49.40	
	17	49.30	56.48
	23	49.14	57.37
	31	49.10	
June	11	49.16	
	18	49.22	
	30	49.26	
July	16	49.27	
	18	49.27	
September	5	49.29	
	14	49.20	
	15	49.30	
	18	49.23	
	24	49.20	

α Bootis—Continued.

		R.A. h. m. s.	Dec. ° ′ ″
September	25	14 8 49.18	+19 57 59.86
October	16	49.16	
	23	49.29	
November	1	48.98	
	2	49.08	
	5	49.30	
	12	49.39	
	13	49.49	
	14	49.24	

ε Bootis.

		R.A.	Dec.
March	19	14 38 26.11	+27 42 35.19
May	9	26.05	35.85
	17	26.13	
June	11	26.18	
	18	26.14	32.55
	22	25.88	
	30	26.22	

α² Libræ.

		R.A.	Dec.
May	9	14 42 35.27	+15 24 53.67
	17	35.20	
June	11	35.22	
	22	35.15	
	30	35.19	

β Ursæ Minoris.

		R.A.	Dec.
May	9	14 51 11.54	+74 46 7.70
	15	12.31	2.49
	17	11.73	5.76
June	11	12.17	
July	24	12.71	
November	5	11.39	

δ Libræ.

		R.A.	Dec.
June	30	14 52 57.54	

β Libræ.

		R.A.	Dec.
May	9	15 8 56.46	— 8 49 29.57
	15	56.57	37.29
	17	56.46	33.71
June	11	56.37	
	30	56.23	

α Coronæ Borealis.

		R.A.	Dec.
April	5	15 28 20.29	+27 13
	16	20.17	
May	9	20.21	25.94
	17	20.15	22.18
	31	20.08	
July	2	20.16	
	24	20.25	21.18

α Serpentis.

		R.A.	Dec.
April	5	15 36 52.98	+ 6.54
May	15	52.95	1.68
	17	52.89	3.25
	23	52.97	4.95
	31	52.84	
July	2	52.88	
	24	52.85	3.64
October	23	52.65	

ζ Ursæ Minoris.

		R.A. h. m. s.	Dec. ° ′ ″
May	15	15 49 31.81	+78 15 9.48
	23	30.89	8.40
	31	31.34	
July	2	31.81	
	24	31.31	12.93

β^1 Scorpii.

		R.A.	Dec.
May	15	15 56 43.53	—19 23 26.18
July	17	43.15	

5333, Scorpii.

		R.A.	Dec.
May	23	15 57 2.18	

γ Scorpii

		R.A.	Dec.
July	2	16 3 16.81	

δ Ophiuchi.

		R.A.	Dec.
May	15	16 6 29.41	+ 3 18 13.47
	31	29.09	
July	2	29.31	
	17	29.29	
	24	29.31	15.33
August	27	29.10	13.66

ψ Ophiuchi.

		R.A.	Dec.
July	2	16 15 19.69	

α Scorpii.

		R.A.	Dec.
May	15	16 20 13.17	—26 5 37.49
	23	(12.71)	
July	2	12.95	
	24	13.07	39.31
August	27	12.85	39.03

5637, Ophiuchi.

		R.A.	Dec.
May	23	16 41 32.29	—10 30 47.13

ε Ursæ Minoris.

		R.A.	Dec.
July	30	17 1 30.82	+82.16
August	25	30.99	28.05
	27	30.93	30.61
	30	31.29	

η Ophiuchi.

		R.A.	Dec.
July	2	17 1 46.55	

α Herculis.

		R.A.	Dec.
July	2	17 7 48.54	+14 34
	17	48.60	
August	27	48.46	3.36
	30	48.49	

θ Ophiuchi.

		R.A.	Dec.
ly	2	17 12 47.96	

α Ophiuchi.

		R.A. h. m. s.	Dec. ° ′ ″
January	22	17 27 58.37	+12 40
August	16	58.31	
	27	58.29	21.49
	30	58.21	24.24
September	7	58.43	
November	5	58.31	

5987, Ophiuchi.

		R.A.	Dec.
August	27	17 34 26.51	—21 36 19.86

γ Draconis.

		R.A.	Dec.
August	24	17 53 7.42	+51 30
	27	7.42	28.72
	30	7.61	33.04
September	7	(7.70)	
	25	7.31	33.12

μ^1 Sagittarii.

		R.A.	Dec.
June	18	18 4 47.48	—21 5
	22	47.67	
August	16	47.53	
	27	47.64	34.18
	30	47.63	32.94
September	25	47.53	33.64

λ Sagittarii.

		R.A.	Dec.
August	27	18 18 42.72	—25 29 59.86

δ Ursæ Minoris.

		R.A.	Dec.
August	16	18 20 44.02	+86 35
	21	45.17	
	30	44.25	
September	25	42.99	51.08

δ Ursæ Minoris, S. P.

		R.A.	Dec.
January	4	18 20 44.78	+86 35 50.00
	18	42.66	
February	6	42.91	48.05
	12	43.33	
March	7	44.67	
	19	44.81	50.81

α Lyræ.

		R.A.	Dec.
January	2	18 31 51.62	+38 38
August	27	51.47	
	30	51.55	
September	7	51.28	48.22
	10	51.58	47.84
	25	51.56	
October	8	51.66	
	27	51.53	54.42
November	15	51.55	
December	5	51.56	
	7	51.35	
	18	51.47	

β Lyræ.

		R.A.	Dec.
August	21	18 44 32.60	+33 11
	24	32.47	
	27	32.64	32.02

β Lyræ—Continued.

		R.A. h. m. s.	Dec. ° ′ ″
September	5	18 44 32.43	
	7	32.29	27.95
	10	32.46	29.47
	25	32.49	32.29

ο Sagittarii.

		R.A.	Dec.
September	25	18 55 41.38	—21 57 21.70

ζ Aquilæ.

		R.A.	Dec.
August	21	18 58 31.04	+13 38
September	5	30.97	43.00
October	27	30.87	43.34

π Sagittarii.

		R.A.	Dec.
September	25	19 0 50.38	—21 15 23.87

δ Aquilæ.

		R.A.	Dec.
August	21	19 17 55.83	+ 2 49
	24	56.05	
	25	56.07	12.32
	27	55.90	
	30	55.91	
September	5	56.07	15.12
	10	55.98	10.03
	12	56.07	8.73
	25	56.12	
October	8	55.95	
	22	56.33	
	24	56.02	
	27	55.89	12.94

6742, Sagittarii.

		R.A.	Dec.
September	25	19 33 56.13	—16 28 15.49

γ Aquilæ.

		R.A.	Dec.
August	21	19 39 7.57	+10 15
	24	(7.42)	
	25	7.51	5.92
	27	7.70	5.10
September	5	7.64	7.48
	12	7.56	4.08
	28	(7.45)	
October	8	(7.44)	7.38
	24	7.63	
	27	7.62	7.52

α Aquilæ.

		R.A.	Dec.
August	21	19 43 27.60	+ 8 28
	24	27.89	
	25	27.79	35.45
	27		35.19
	30	27.96	
September	5	27.76	
	12	27.78	31.83
	18	27.56	
	25	27.75	34.53
	28	27.83	
October	8	27.81	35.40
	24	27.81	
	27	27.81	35.96
November	2	27.79	
	7	27.75	
December	5	27.82	
	7	27.93	

β Aquilæ.

		R. A. h. m. s.	Dec. ° ′ ″
August	25 - -	19 47 56.61	+ 6 2
	27 - -	(56.81)	
	30 - -	(56.81)	
September	10 - -	56.64	9.07
	12 - -	56.62	8.08
	18 - -	56.56	
	27 - -	56.68	
	28 - -	56.49	9.55
October	8 - -	56.57	
	24 - -	56.67	
	27 - -	56.67	10.57
November	7 - -	56.64	

6840, Sagittarii.

		R. A.	Dec.
September	25 - -	19 49 26.10	—15 53 3.81

α^2 Capricorni.

		R. A.	Dec.
August	24 - -	20 9 43.71	—13 0
	25 - -	43.61	
	30 - -	43.58	
September	10 - -	43.61	
	12 - -	43.55	21.87
	18 - -	43.63	
	27 - -	43.49	
October	8 - -	43.54	
	24 - -	43.56	
	27 - -	43.53	18.29
November	7 - -	43.63	

β Capricorni.

		R. A.	Dec.
August	30 - -	20 12 34.71	—15 15 3.62
September	27 - -	34.64	0.28

λ Ursæ Minoris.

		R. A.	Dec.
August	21 - -	20 13 2.11	+88.51
	24 - -	1.78	
September	5 - -	3.83	37.09

λ Ursæ Minoris, S. P.

		R. A.	Dec.
February	15 - -	20 13 2.27	

π Capricorni.

		R. A.	Dec.
October	24 - -	20 18 43.75	

ρ Capricorni.

		R. A.	Dec.
August	30 - -	20 20 17.85	—18 18 18.19

υ Capricorni.

		R. A.	Dec.
September	27 - -	20 31 30.33	+18 39 33.73

α Cygni.

		R. A.	Dec.
January	18 - -	20 36 (18.79)	+44 44
	23 - -	19.06	
September	12 - -	18.93	47.61
	18 - -	(19.52)	
	25 - -	19.08	50.75
	27 - -	18.98	

α Cygni—Continued.

		R. A. h. m. s.	Dec. ° ′ ″
October	8 - -	20 36 19.12	
	22 - -	19.20	
November	13 - -	19.05	47.17
December	18 - -	19.12	

ε Aquarii.

		R. A.	Dec.
August	30 - -	20 39 33.16	

μ Aquarii.

		R. A.	Dec.
August	30 - -	20 44 33.46	

61^1 Cygni.

		R. A.	Dec.
September	7 - -	21 0 10.73	+38 0 57.39
	10 - -	10.55	53.49
	12 - -	(10.86)	
	18 - -	10.55	
	21 - -	10.53	54.96
	25 - -	10.49	57.35
	28 - -	10.44	
November	13 - -	10.46	

61^2 Cygni.

		R. A.	Dec.
November	13 - -	21 0 11.64	+38 0 52.83

ζ Cygni.

		R. A.	Dec.
September	7 - -	21 6 33.28	+29 36 (54.34)
	10 - -	33.14	51.58
	12 - -	33.26	50.60
	18 - -	33.13	50.18
	21 - -	33.28	52.67
	25 - -	33.18	
	28 - -	33.20	51.45
October	8 - -	33.14	
November	13 - -	33.14	

ι Capricorni.

		R. A.	Dec.
October	24 - -	21 13 53.21	

α Cephei.

		R. A.	Dec.
September	7 - -	21 14 59.53	+61 57
	12 - -	59.67	2.80
	18 - -	59.81	5.84
	21 - -	59.68	6.22
	25 - -	59.47	7.59
	28 - -	(59.27)	8.00
October	8 - -	59.71	8.67
	27 - -	59.67	7.53
November	3 - -	59.56	
	12 - -	60.02	
	13 - -	59.47	
	19 - -	59.60	

β Aquarii.

		R. A.	Dec.
September	5 - -	21 23 39.42	— 6 13 37.35
	12 - -	39.54	40.01
	21 - -	39.44	41.09
	25 - -	39.43	40.27
	27 - -	39.63	
	28 - -	39.40	38.54

β Aquarii—Continued.

		R. A. h. m. s.	Dec. ° ′ ″
October	8 - -	21 23 39.66	
	24 - -	(39.30)	
	30 - -	39.49	
November	3 - -	39.52	
	12 - -	39.47	
	23 - -	39.42	
	19 - -	39.41	

β Cephei.

		R. A.	Dec.
September	7 - -	21 26 42.17	+69 54
October	8 - -	42.17	
	27 - -	42.34	
November	13 - -	42.12	
	19 - -	42.20	

γ Capricorni.

		R. A.	Dec.
September	27 - -	21 31 46.37	—17 20 8.58
	28 - -	46.32	10.87

ε Pegasi.

		R. A.	Dec.
September	5 - -	21 36 (48.94)	+ 9 11 27.15
	7 - -	49.21	
	10 - -	49.10	23.64
	12 - -	49.09	
	18 - -	49.01	26.20
	21 - -	48.97	25.73
October	8 - -	49.32	24.28
	24 - -	49.00	
	27 - -	49.12	27.28
	30 - -	49.14	
November	3 - -	49.14	27.86
	12 - -	49.09	
	13 - -	49.16	
	19 - -	49.10	
December	5 - -	49.04	

δ Capricorni.

		R. A.	Dec.
September	27 - -	21 38 45.28	—16 48
	28 - -	45.27	19.23
October	26 - -	45.17	

Lalande, 42700.

		R. A.	Dec.
November	13 - -	21 47 15.48	—21 50 37.95

Anonymous.

		R. A.	Dec.
November	19 - -	21 48 12.68	—21 28 22.79

Rumker, XXI, 163.

		R. A.	Dec.
November	13 - -	21 49 56.78	—21 26 46.82
	19 - -	56.65	53.59

Argelander's Zones, 246.

		R. A.	Dec.
October	24 - -	21 52 9.74	—21 32
November	13 - -	9.89	1.50

Argelander's Zones, 237.

		R. A.	Dec.
November	13 - -	21 55 48.02	—[illegible] 12.44

α AQUARII.

	R. A.	Dec.
	h. m. s.	° ′ ″
September 5 - -	21 58 4.86	— 1 2 51.73
7 - -	4.73	44.18
November 3 - -	4.66	46.25

α GRUIS.

December 5 - -	21 58 44.96	—47 41
7 - -	45.22	

ι AQUARII.

October 28 - -	21 58 19.82	

LALANDE, 43106.

November 13 - -	21 59 29.99	—22 19 17.73

θ AQUARII.

September 28 - -	22 8 54.79	— 8 31 39.67

σ AQUARII.

October 26 - -	22 22 42.27	—11 26
27 - -	42.27	33.81

ζ PEGASI.

September 12 - -	22 33 58.66	+10 3
24 - -	58.93	0.45
28 - -	58.82	4.57

ζ PEGASI—Continued.

	R. A.	Dec.
	h. m. s.	° ′ ″
October 26 - -	58.96	
27 - -	59.08	4.50
November 3 - -	58.85	4.21
5 - -	58.76	2.89
7 - -	58.85	
12 - -	58.93	
13 - -	58.97	
19 - -	58.92	
December 11 - -	58.88	

λ AQUARII.

October 26 - -	22 44 46.73	
27 - -	47.12	

α PISCIS AUSTRALIS.

September 12 - -	22 49 (21.29)	—30 24 57.84
21 - -	21.05	54.21
24 - -	20.94	58.12
27 - -	21.03	
28 - -	20.99	
October 24 - -	21.17	
26 - -	21.02	
November 3 - -	20.96	55.13
5 - -	21.03	56.40
12 - -	20.84	
19 - -	(21.17)	
December 5 - -	21.00	
7 - -	(21.29)	
11 - -	(21.17)	
17 - -	21.00	

α PEGASI.

	R. A.	Dec.
	h. m. s.	° ′ ″
September 21 - -	22 57 17.53	+14 23 59.64
24 - -	17.49	57.91
October 24 - -	17.50	
26 - -	17.47	
November 5 - -	17.50	61.53
12 - -	17.59	
19 - -	17.49	
December 11 - -	17.38	
17 - -	17.46	

ι PISCIUM.

September 24 - -	23 32 14.12	+ 4 48 48.93
December 21 - -	14.09	

γ CEPHEI.

October 26 - -	23 33 14.26	
27 - -	13.89	
November 19 - -	13.80	

γ CEPHEI, S. P.

May 2 - -	23 33 13.90	+76 47 43.97

20 PISCIUM.

October 27 - -	23 40 13.97	

27 PISCIUM.

October 27 - -	23 50 59.55	— 4 23 12.61

Weisse XXIII, 1242.

Date		R.A. h. m. s.	Dec. ° ′ ″
October	29	0 0 8.09	—11 57 50.40

α Andromedæ.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	5	0 0 38.49	+28 15
October	1	38.50	
	9	38.50	43.46
	28	38.57	40.42

γ Pegasi.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	5	0 5 30.94	+14 20
October	1	30.95	
	3	30.99	58.31
	28	30.96	
November	9	30.93	
	14	30.93	
December	11	31.08	

α Cassiopeiæ.

Date		R.A. h. m. s.	Dec. ° ′ ″
November	13	0 32 1.50	+55 42 51.11
	14	1.49	
December	11	1.26	49.01

20 Ceti.

Date		R.A. h. m. s.	Dec. ° ′ ″
December	13	0 45 20.62	— 1 57 36.49

Polaris.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	12	1 4 60.77	+88 30
	19	66.45	
	23	62.66	
	29	59.20	35.26
February	25	58.12	
March	5	59.55	
April	29	64.71	
October	9	63.77	34.05
	15	66.15	36.15
	28	61.10	32.39
November	4	66.14	(30.63)
	6	61.36	36.40
	14	64.63	
December	11	59.80	34.74

Polaris, S. P.

Date		R.A. h. m. s.	Dec. ° ′ ″
April	2	1 4 61.31	+88.30
	15	61.10	35.71
May	9	60.76	39.82
	11	59.91	34.09
	18	62.16	(42.64)
June	3	61.07	35.50
	4	61.55	
	13	63.09	
September	6	59.92	35.62
	23	57.92	
	25	59.11	
	28	60.05	38.52
October	1	63.05	33.72
	3	62.26	
	4	61.10	
	10	62.03	
	14	61.64	35.95
	16	62.67	34.01
	28	63.29	38.74
November	10	62.75	
	13	65.72	38.45
	21	59.81	

ν Piscium.

Date		R.A. h. m. s.	Dec. ° ′ ″
December	13	1 33 37.94	+ 4 43 38.61

α Arietis.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	12	1 58 43.53	+22 44 60.21
	19	43.64	
	25	43.58	
December	11	- -	65.46
	13	43.58	62.80

γ Ceti.

Date		R.A. h. m. s.	Dec. ° ′ ″
February	5	2 35 31.90	+ 2 36
December	13	31.90	7.39

α Ceti.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	12	2 54 26.54	+ 3 29 55.41
February	5	26.38	

α Persei.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	9	3 13 38.21	+49 19
	12	38.22	20.57
February	5	38.36	

17 Tauri.

Date		R.A. h. m. s.	Dec. ° ′ ″
February	5	3 35 58.57	+23 38
	8	58.60	

23 Tauri.

Date		R.A. h. m. s.	Dec. ° ′ ″
February	8	3 37 25.97	+23 28

η Tauri.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	9	3 38 34.36	+23 28
	14	34.35	
February	5	34.48	
	8	34.58	

γ^1 Eridani.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	14	3 51 1.81	—13 56
February	8	1.83	
	16	(1.58)	
December	13	1.92	17.64

α Tauri.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	5	4 27 19.01	+16 12
	14	19.19	
	46	18.92	

Bessel's Zones, 396.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	14	5 3 4.87	

α Aurigæ.

Date		R.A. h. m. s.	Dec. ° ′ ″
February	16	5 5 36.97	+45 50
	23	37.07	21.26
May	13	36.99	

β Orionis.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	9	5 7 19.86	— 8 22
February	22	19.94	
April	29	19.92	

β Tauri.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	22	5 16 48.77	+28 28
	23	48.77	

δ Orionis.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	14	5 24 20.51	— 0 24
	22	20.71	
February	14	20.75	
	22	20.82	
	23	20.67	52.37

α Leporis.

Date		R.A. h. m. s.	Dec. ° ′ ″
February	22	5 26 6.78	—17 56

ε Orionis

Date		R.A. h. m. s.	Dec. ° ′ ″
January	9	5 28 36.19	— 1 18
	14	36.25	
February	14	36.10	
March	8	36.21	
April	29	36.30	

α Columbæ.

Date		R.A. h. m. s.	Dec. ° ′ ″
February	23	5 34 12.87	—34 9
March	8	13.00	28.65

α Orionis.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	9	5 47 3.11	+ 7 22
	19	3.05	26.47
February	11	3.13	27.47
	14	3.27	
	25	3.20	28.01
March	8	3.09	24.86
May	13	3.03	

μ Geminorum.

Date		R.A. h. m. s.	Dec. ° ′ ″
February	11	6 13 53.09	+22 35 7.36
	22	53.30	
	25	- -	9.31

51 (Hev.) Cephei.

Date		R.A. h. m. s.	Dec. ° ′ ″
February	16	6 28 35.42	+87.15

α Canis Majoris.

Date		R.A. h. m. s.	Dec. ° ′ ″
January	9	6 38 32.54	—16 30
February	11	32.39	49.68
	22	32.26	
	23	32.30	
	25	32.27	44.90
March	8	- -	55.97
	11	32.30	

ε Canis Majoris.

		R.A. h. m. s.	Dec. ° ′ ″
January	9	6 52 43.90	—28 46
February	11	43.86	17.39
	16	43.75	
	22	43.69	
March	4	43.72	

δ Geminorum.

		R.A. h. m. s.	Dec. ° ′ ″
February	22	7 11 9.81	+22.15
	23	9.84	11.86
	25	9.72	

α^2 Geminorum.

		R.A. h. m. s.	Dec. ° ′ ″
March	4	7 25 1.24	+32 12
	11	1.26	
April	29	1.31	41.80

α Canis Majoris.

		R.A. h. m. s.	Dec. ° ′ ″
March	4	7 31 26.83	+ 5 36
	11	26.82	
April	29	26.92	22.96

κ Geminorum.

		R.A. h. m. s.	Dec. ° ′ ″
February	22	7 35 23.40	+24 45
	23	23.39	10.36

β Geminorum.

		R.A. h. m. s.	Dec. ° ′ ″
March	11	7 36 7.72	+28 22
April	29	7.85	58.71

15 Argus.

		R.A. h. m. s.	Dec. ° ′ ″
February	25	8 1 9.31	—23 52
March	4	9.32	

δ Cancri.

		R.A. h. m. s.	Dec. ° ′ ″
February	23	8 36 9.41	+18.42

ε Hydræ.

		R.A. h. m. s.	Dec. ° ′ ″
February	19	8 38 49.67	+ 6.57

α Cancri.

		R.A. h. m. s.	Dec. ° ′ ″
February	23	8 50 16.77	+12 26

α Hydræ.

		R.A. h. m. s.	Dec. ° ′ ″
February	19	9 20 12.97	— 8 0
March	11	12.89	39.61
April	2	12.88	

θ Ursæ Majoris.

		R.A. h. m. s.	Dec. ° ′ ″
April	2	9 22 47.60	+52 21

ε Leonis.

		R.A. h. m. s.	Dec. ° ′ ″
February	19	9 37 19.83	+24 27
March	11	19.59	45.19

α Leonis.

		R.A. h. m. s.	Dec. ° ′ ″
February	19	10 0 22.68	+12 41
March	11	22.77	55.65
April	29	22.54	53.24

δ Leonis.

		R.A. h. m. s.	Dec. ° ′ ″
May	6	11 6 7.41	

δ Hydræ et Crateris.

		R.A. h. m. s.	Dec. ° ′ ″
April	2	11 11 50.48	+21 20

β Leonis.

		R.A. h. m. s.	Dec. ° ′ ″
March	8	11 41 24.28	+15.24
April	2	24.19	
	15	24.28	
	17	24.21	
	29	24.22	41.92
May	1	24.18	36.04

γ^1 Ursæ Majoris.

		R.A. h. m. s.	Dec. ° ′ ″
April	2	11 45 54.96	+54.31
	15	54.81	
	17	55.04	

β Corvi.

		R.A. h. m. s.	Dec. ° ′ ″
April	2	12 26 30.96	—22 33
	15	31.08	59.29
	29	30.89	57.54
May	1	30.93	
	6	30.88	57.00
	9	30.82	
	11	30.88	

α Virginis.

		R.A. h. m. s.	Dec. ° ′ ″
April	29	13 17 17.64	—10 22
May	1	- -	32.84
September	22	17.66	

η Ursæ Majoris.

		R.A. h. m. s.	Dec. ° ′ ″
April	15	13 41 37.16	+50 3
	29	37.46	50.43
May	11	37.35	50.81
	18	37.44	
	20	37.40	48.70
June	4	37.40	
	5	37.55	
September	6	37.41	
November	21	37.44	

η Bootis.

		R.A. h. m. s.	Dec. ° ′ ″
April	15	13 47 32.66	+19 9
May	9	32.51	7.17
	11	32.57	4.25
	18	32.50	
	20	32.53	
June	5	32.54	6.12

θ Centauri.

		R.A. h. m. s.	Dec. ° ′ ″
June	4	13 57 52.74	—35 37
	5	52.78	49.85

α Bootis.

		R.A. h. m. s.	Dec. ° ′ ″
April	29	14 8 49.36	+19 57 58.07
May	9	49.35	59.42
	11	49.21	60.77
	18	49.45	56.87
	20	49.15	54.86
June	5	49.30	54.44
September	23	49.25	
	28	49.30	
October	3	49.19	
November	13	49.13	
	21	49.18	

4 Libræ

		R.A. h. m. s.	Dec. ° ′ ″
June	5	14 34 33.81	—24 21 20.88

ε Bootis.

		R.A. h. m. s.	Dec. ° ′ ″
May	20	14 38 26.18	+27 42 32.14

α^2 Libræ.

		R.A. h. m. s.	Dec. ° ′ ″
May	9	14 42 35.26	—15 24 51.71
	20	35.27	

12 Libræ.

		R.A. h. m. s.	Dec. ° ′ ″
June	3	14 45 38.08	—24 1 28.94
	5	37.92	30.60

59 Hydræ.

		R.A. h. m. s.	Dec. ° ′ ″
June	5	14 49 47.18	—27 3 8.97

β Ursæ Minoris.

		R.A. h. m. s.	Dec. ° ′ ″
May	9	14 51 11.91	+74 46
	18	12.12	

β Ursæ Minoris, S. P.

		R.A. h. m. s.	Dec. ° ′ ″
December	13	14 51 11.66	+74 46 7.14

1 Lupi.

		R.A. h. m. s.	Dec. ° ′ ″
June	3	15 5 26.75	—30 57 16.59

β Libræ

		R.A. h. m. s.	Dec. ° ′ ″
May	9	15 8 56.49	— 8 49 27.09
	18	56.35	29.62
June	3	56.36	35.76
	5	56.42	38.80
	10	66.42	

Argelander's Zones, 209, 54.

		R.A. h. m. s.	Dec. ° ′ ″
June	3	15 23	—21 26 58.79
	5		66.60

Lalande, 28414.

		R.A. h. m. s.	Dec. ° ′ ″
May	18	15 28 59.31	—22 38 22.69
	20	59.48	23.49

Lalande, 28446.

		R.A. h. m. s.	Dec. ° ′ ″
June	3	15 29	—22 33 11.81
	5		13.81
	24	52.89	13.48

Argelander, Zone 209, 63.

		R.A. h. m. s.	Dec. ° ′ ″
May	18	15 30 32.24	—22 39 18.76
	20	32.34	15.86

α Serpentis.

		R.A. h. m. s.	Dec. ° ′ ″
June	10	15 36 52.91	+ 6 54

ζ Ursæ Minoris

		R.A. h. m. s.	Dec. ° ′ ″
May	20	15 49 31.51	+78 15 14.79
June	3	31.74	12.68
	10	32.05	7.98

β¹ Scorpii.

		R.A. h. m. s.	Dec. ° ′ ″
April	29	15 56 43.20	—19 22 19.11

δ Ophiuchi.

		R.A. h. m. s.	Dec. ° ′ ″
April	29	16 6 29.03	— 3 18 10.84
May	20	29.28	13.61
June	3	29.36	11.30
	24		12.84
September	6	29.39	

Argelander, Zone 210, 43.

		R.A. h. m. s.	Dec. ° ′ ″
May	9	16 6 43.08	—24 44 6.36

Fedorenko's Lalande, 2761.

		R.A. h. m. s.	Dec. ° ′ ″
June	10	16 15 45.53	+71 12 17.57

Fedorenko's Lalande, 2762.

		R.A. h. m. s.	Dec. ° ′ ″
June	10	16 15 55.90	+71 18 31.76

α Scorpii.

		R.A. h. m. s.	Dec. ° ′ ″
April	29	16 20	—26 5 39.93
May	9	12.96	
June	5	12.97	41.73
	24		40.47
September	6	12.92	
October	15	12.83	38.56
	16	13.20	39.21

5632.

		R.A. h. m. s.	Dec. ° ′ ″
June	24	16 40	—34 0 54.20

Groombridge, 2404.

		R.A. h. m. s.	Dec. ° ′ ″
June	5	16 56 36.54	—73 9 2.24

Ursæ Minoris, 5769.

		R.A. h. m. s.	Dec. ° ′ ″
June	5	16 59 17.68	+73 21 3.61

ε Ursæ Minoris.

		R.A. h. m. s.	Dec. ° ′ ″
June	24	17 1	+82 16 33.99

η Ophiuchi.

		R.A. h. m. s.	Dec. ° ′ ″
April	29	17 1 46.78	—15 31 58.75

Argelander, Zone 126, 47.

		R.A. h. m. s.	Dec. ° ′ ″
June	3	17 3 33.95	+73 24 11.68
	5	35.96	10.04

Argelander, Zone 126, 48.

		R.A. h. m. s.	Dec. ° ′ ″
June	3	17 4 29.30	+73 31 1.84

α Herculis.

		R.A. h. m. s.	Dec. ° ′ ″
January	18	17 7 48.56	+14 33

ξ Ophiuchi.

		R.A. h. m. s.	Dec. ° ′ ″
April	29	17 12 1.06	—20 56 43.72

(5851.)

		R.A. h. m. s.	Dec. ° ′ ″
June	24	17 12	—24 50 36.38

5915.

		R.A. h. m. s.	Dec. ° ′ ″
June	24	17 23	—36 59 16.98
September	28		23.37

β Draconis.

		R.A. h. m. s.	Dec. ° ′ ″
August	7	17 27 2.71	+52 24

α Ophiuchi.

		R.A. h. m. s.	Dec. ° ′ ″
January	18	17 27 58.29	+12 40
June	5	58.41	

6066.

		R.A. h. m. s.	Dec. ° ′ ″
August	9	17 47	—23 54 46.99

6077.

		R.A. h. m. s.	Dec. ° ′ ″
April	29	17 50 37.95	—23 47
June	24		49.90

γ Draconis.

		R.A. h. m. s.	Dec. ° ′ ″
January	18	17 53 7.52	+51 30 29.27
June	3	7.45	
	5	7.56	
October	1	7.47	29.14

μ¹ Sagittarii.

		R.A. h. m. s.	Dec. ° ′ ″
April	29	18 4 47.58	—21 5 28.80
June	5	47.35	
	10	47.45	

μ¹ Sagittarii—Continued.

		R.A. h. m. s.	Dec. ° ′ ″
August	9	18 4	—21 5 38.39
	16	47.55	
October	1	47.48	33.93
	4	47.46	
	8	47.54	

δ Ursæ Minoris.

		R.A. h. m. s.	Dec. ° ′ ″
June	10	18 20 44.02	+86 35 45.87
August	7	44.01	
	9	42.82	
	16	42.52	
September	23	43.21	52.97
	25	45.17	
	28	44.59	
October	1	43.35	50.82
	4	42.67	48.09
	8	43.32	49.78
November	14	41.04	

δ Ursæ Minoris, S. P.

		R.A. h. m. s.	Dec. ° ′ ″
February	16	18 20 42.58	+86 35
	16	45.38	
March	8	34.44	52.63

α Lyræ.

		R.A. h. m. s.	Dec. ° ′ ″
January	4	18 31 51.59	+38 38
	18	51.54	
	21	51.52	
	22	51.52	
June	3	51.48	
	10	51.63	45.02
	16	51.50	
September	25	51.57	
	28	51.54	43.72
October	31	51.50	48.13
November	14	51.55	51.74
	26	51.54	

β Lyræ.

		R.A. h. m. s.	Dec. ° ′ ″
June	10	18 44 32.43	+33 11
August	9		34.08
	16	32.48	
	26	32.41	
September	23	32.53	26.11
	25	32.41	
October	1	32.55	27.63
	4	32.42	28.94
	8	32.58	

6521.

		R.A. h. m. s.	Dec. ° ′ ″
August	9	18 57	—27 52 68.11
September	23	34.16	63.26
	25	34.00	
	28	34.19	68.42
October	1	34.18	65.99
	8	34.20	60.14

ζ Aquilæ.

		R.A. h. m. s.	Dec. ° ′ ″
August	26	18 58 30.93	+13 38
September	17	30.87	37.98

ε Canis Majoris.

		R.A. h. m. s.	Dec. ° ′	″
January	9	6 52 43.90	−28 46	
February	11	43.86		17.39
	16	43.75		
	22	43.69		
March	4	43.72		

δ Geminorum.

		R.A. h. m. s.	Dec. ° ′	″
February	22	7 11 9.81	+22.15	
	23	9.84		11.86
	25	9.72		

α^2 Geminorum.

		R.A. h. m. s.	Dec. ° ′	″
March	4	7 25 1.24	+32 12	
	11	1.26		
April	29	1.31		41.80

α Canis Majoris.

		R.A. h. m. s.	Dec. ° ′	″
March	4	7 31 26.83	+ 5 36	
	11	26.82		
April	29	26.92		22.96

κ Geminorum.

		R.A. h. m. s.	Dec. ° ′	″
February	22	7 35 23.40	+24 45	
	23	23.39		10.36

β Geminorum.

		R.A. h. m. s.	Dec. ° ′	″
March	11	7 36 7.72	+28 22	
April	29	7.85		58.71

15 Argus.

		R.A. h. m. s.	Dec. ° ′	″
February	25	8 1 9.31	−23 52	
March	4	9.32		

δ Cancri.

		R.A. h. m. s.	Dec. ° ′	″
February	23	8 36 9.41	+18.42	

ε Hydræ.

		R.A. h. m. s.	Dec. ° ′	″
February	19	8 38 49.67	+ 6.57	

α Cancri.

		R.A. h. m. s.	Dec. ° ′	″
February	23	8 50 16.77	+12 26	

α Hydræ.

		R.A. h. m. s.	Dec. ° ′	″
February	19	9 20 12.97	− 8 0	
March	11	12.89		39.61
April	2	12.88		

θ Ursæ Majoris.

		R.A. h. m. s.	Dec. ° ′	″
April	2	9 22 47.60	+52 21	

ε Leonis.

		R.A. h. m. s.	Dec. ° ′	″
February	19	9 37 19.83	+24 27	
March	11	19.59		45.19

α Leonis.

		R.A. h. m. s.	Dec. ° ′	″
February	19	10 0 22.68	+12 41	
March	11	22.77		55.65
April	29	22.54		53.24

δ Leonis.

		R.A. h. m. s.	Dec. ° ′	″
May	6	11 6 7.41		

δ Hydræ et Crateris.

		R.A. h. m. s.	Dec. ° ′	″
April	2	11 11 50.48	+21 20	

β Leonis.

		R.A. h. m. s.	Dec. ° ′	″
March	8	11 41 24.28	+15.24	
April	2	24.19		
	15	24.28		
	17	24.21		
	29	24.22		41.92
May	1	24.18		36.04

γ^1 Ursæ Majoris.

		R.A. h. m. s.	Dec. ° ′	″
April	2	11 45 54.96	+54.31	
	15	54.81		
	17	55.04		

β Corvi.

		R.A. h. m. s.	Dec. ° ′	″
April	2	12 26 30.96	−22 33	
	15	31.08		59.29
	29	30.89		57.54
May	1	30.93		
	6	30.88		57.00
	9	30.82		
	11	30.88		

α Virginis.

		R.A. h. m. s.	Dec. ° ′	″
April	29	13 17 17.64	−10 22	
May	1	- -		32.84
September	22	17.66		

η Ursæ Majoris.

		R.A. h. m. s.	Dec. ° ′	″
April	15	13 41 37.16	+50 3	
	29	37.46		50.43
May	11	37.35		50.81
	18	37.44		
	20	37.40		48.70
June	4	37.40		
	5	37.55		
September	6	37.41		
November	21	37.44		

η Bootis.

		R.A. h. m. s.	Dec. ° ′	″
April	15	13 47 32.66	+19 9	
May	9	32.51		7.17
	11	32.57		4.25
	18	32.50		
	20	32.53		
June	5	32.54		6.12

θ Centauri.

		R.A. h. m. s.	Dec. ° ′	″
June	4	13 57 52.74	−35 37	
	5	52.78		49.85

α Bootis.

		R.A. h. m. s.	Dec. ° ′	″
April	29	14 8 49.36	+19 57	58.
May	9	49.35		59.
	11	49.21		60.
	18	49.45		56.
	20	49.15		54.
June	5	49.30		54.
September	23	49.25		
	28	49.30		
October	3	49.19		
November	13	49.13		
	21	49.18		

4 Libræ

		R.A. h. m. s.	Dec. ° ′	″
June	5	14 34 33.81	−24 21	20.

ε Bootis.

		R.A. h. m. s.	Dec. ° ′	″
May	20	14 38 26.18	+27 42	32.

α^2 Libræ.

		R.A. h. m. s.	Dec. ° ′	″
May	9	14 42 35.26	−15 24	51.7
	20	35.27		

12 Libræ.

		R.A. h. m. s.	Dec. ° ′	″
June	3	14 45 38.08	−24 1	28.9
	5	37.92		30.6

59 Hydræ.

		R.A. h. m. s.	Dec. ° ′	″
June	5	14 49 47.18	−27 3	8.9

β Ursæ Minoris.

		R.A. h. m. s.	Dec. ° ′	″
May	9	14 51 11.91	+74 46	
	18	12.12		

β Ursæ Minoris, S. P.

		R.A. h. m. s.	Dec. ° ′	″
December	13	14 51 11.66	+74 46	7.1

1 Lupi.

		R.A. h. m. s.	Dec. ° ′	″
June	3	15 5 26.75	−30 57	16.5

β Libræ

		R.A. h. m. s.	Dec. ° ′	″
May	9	15 8 56.49	− 8 49	27.0
	18	56.35		29.6
June	3	56.36		35.7
	5	56.42		38.8
	10	66.42		

Argelander's Zones, 209, 54.

		R.A. h. m. s.	Dec. ° ′	″
June	3	15 23	−21 26	58.7
	5			66.6

Lalande, 28414.

		R.A. h. m. s.	Dec. ° ′	″
May	18	15 28 59.31	−22 38	22.6
	20	59.48		23.4

Lalande, 28446.

	Day	R.A. h. m. s.	Dec. ° ′ ″
	3	15 29	−22 33 11.81
	5		13.81
	24	52.89	13.48

Argelander, Zone 209, 63.

	Day	R.A. h. m. s.	Dec. ° ′ ″
	18	15 30 32.24	−22 39 18.76
	20	32.34	15.86

α Serpentis.

	Day	R.A. h. m. s.	Dec. ° ′ ″
	10	15 36 52.91	+ 6 54

ζ Ursæ Minoris

	Day	R.A. h. m. s.	Dec. ° ′ ″
	20	15 49 31.51	+78 15 14.79
	3	31.74	12.68
	10	32.05	7.98

β¹ Scorpii.

	Day	R.A. h. m. s.	Dec. ° ′ ″
l	29	15 56 43.20	−19 22 19.11

δ Ophiuchi.

	Day	R.A. h. m. s.	Dec. ° ′ ″
l	29	16 6 29.03	− 3 18 10.84
	20	29.28	13.61
	3	29.36	11.30
	24		12.84
mber	6	29.39	

Argelander, Zone 210, 43.

	Day	R.A. h. m. s.	Dec. ° ′ ″
	9	16 6 43.08	−24 44 6.36

Fedorenko's Lalande, 2761.

	Day	R.A. h. m. s.	Dec. ° ′ ″
	10	16 15 45.53	+71 12 17.57

Fedorenko's Lalande, 2762.

	Day	R.A. h. m. s.	Dec. ° ′ ″
	10	16 15 55.90	+71 18 31.76

α Scorpii.

	Day	R.A. h. m. s.	Dec. ° ′ ″
l	29	16 20	−26 5 39.93
	9	12.96	
	5	12.97	41.73
	24		40.47
ember	6	12.92	
ber	15	12.83	38.56
	16	13.20	39.21

5632.

	Day	R.A. h. m. s.	Dec. ° ′ ″
	24	16 40	−34 0 54.20

Groombridge, 2404.

	Day	R.A. h. m. s.	Dec. ° ′ ″
	5	16 56 36.54	−73 9 2.24

Ursæ Minoris, 5769.

	Day	R.A. h. m. s.	Dec. ° ′ ″
	5	16 59 17.68	+73 21 3.61

ε Ursæ Minoris.

	Day	R.A. h. m. s.	Dec. ° ′ ″
June	24	17 1	+82 16 33.99

η Ophiuchi.

	Day	R.A. h. m. s.	Dec. ° ′ ″
April	29	17 1 46.78	−15 31 58.75

Argelander, Zone 126, 47.

	Day	R.A. h. m. s.	Dec. ° ′ ″
June	3	17 3 33.95	+73 24 11.68
	5	35.96	10.04

Argelander, Zone 126, 48.

	Day	R.A. h. m. s.	Dec. ° ′ ″
June	3	17 4 29.30	+73 31 1.84

α Herculis.

	Day	R.A. h. m. s.	Dec. ° ′ ″
January	18	17 7 48.56	+14 33

ξ Ophiuchi.

	Day	R.A. h. m. s.	Dec. ° ′ ″
April	29	17 12 1.06	−20 56 43.72

(5851.)

	Day	R.A. h. m. s.	Dec. ° ′ ″
June	24	17 12	−24 50 36.38

5915.

	Day	R.A. h. m. s.	Dec. ° ′ ″
June	24	17 23	−36 59 16.98
September	28		23.37

β Draconis.

	Day	R.A. h. m. s.	Dec. ° ′ ″
August	7	17 27 2.71	+52 24

α Ophiuchi.

	Day	R.A. h. m. s.	Dec. ° ′ ″
January	18	17 27 58.29	+12 40
June	5	58.41	

6066.

	Day	R.A. h. m. s.	Dec. ° ′ ″
August	9	17 47	−23 54 46.99

6077.

	Day	R.A. h. m. s.	Dec. ° ′ ″
April	29	17 50 37.95	−23 47
June	24		49.90

γ Draconis.

	Day	R.A. h. m. s.	Dec. ° ′ ″
January	18	17 53 7.52	+51 30 29.27
June	3	7.45	
	5	7.56	
October	1	7.47	29.14

μ¹ Sagittarii.

	Day	R.A. h. m. s.	Dec. ° ′ ″
April	29	18 4 47.58	−21 5 28.80
June	5	47.35	
	10	47.45	

μ¹ Sagittarii—Continued.

	Day	R.A. h. m. s.	Dec. ° ′ ″
August	9	18 4	−21 5 38.39
	16	47.55	
October	1	47.48	33.93
	4	47.46	
	8	47.54	

δ Ursæ Minoris.

	Day	R.A. h. m. s.	Dec. ° ′ ″
June	10	18 20 44.02	+86 35 45.87
August	7	44.01	
	9	42.82	
	16	42.52	
September	23	43.21	52.97
	25	45.17	
	28	44.59	
October	1	43.35	50.82
	4	42.67	48.09
	8	43.32	49.78
November	14	41.04	

δ Ursæ Minoris, S. P.

	Day	R.A. h. m. s.	Dec. ° ′ ″
February	16	18 20 42.58	+86 35
	16	45.38	
March	8	34.44	52.63

α Lyræ.

	Day	R.A. h. m. s.	Dec. ° ′ ″
January	4	18 31 51.59	+38 38
	18	51.54	
	21	51.52	
	22	51.52	
June	3	51.48	
	10	51.63	45.02
	16	51.50	
September	25	51.57	
	28	51.54	43.72
October	31	51.50	48.13
November	14	51.55	51.74
	26	51.54	

β Lyræ.

	Day	R.A. h. m. s.	Dec. ° ′ ″
June	10	18 44 32.43	+33 11
August	9		34.08
	16	32.48	
	26	32.41	
September	23	32.53	26.11
	25	32.41	
October	1	32.55	27.63
	4	32.42	28.94
	8	32.58	

6521.

	Day	R.A. h. m. s.	Dec. ° ′ ″
August	9	18 57	−27 52 68.11
September	23	34.16	63.26
	25	34.00	
	28	34.19	68.42
October	1	34.18	65.99
	8	34.20	60.14

ζ Aquilæ.

	Day	R.A. h. m. s.	Dec. ° ′ ″
August	26	18 58 30.93	+13 38
September	17	30.87	37.98

δ Aquilæ.

		R.A. h. m. s.	Dec. ° ′ ″
August	7	19 17 55.93	+ 2 49
	26	56.16	
September	17	56.00	12.53
	21	56.07	8.69
	28	55.96	9.24
October	1	55.94	9.50
	8	55.95	
	15	55.91	10.90

6726.

		R.A. h. m. s.	Dec. ° ′ ″
October	1	19 30 48.26	−23 45
	4		49.68
	8	48.26	49.33

6727.

		R.A. h. m. s.	Dec. ° ′ ″
September	23	19 31	−23 45 61.06
October	1	5.67	62.59
	4	5.40	61.95
	8	5.87	60.78

γ Aquilæ.

		R.A. h. m. s.	Dec. ° ′ ″
August	7	19 39 7.68	+10 14
September	16	7.64	
	17	7.58	65.50
	21	7.67	59.61
	23	7.65	
	28	7.67	65.23
October	3	7.70	
	15	7.65	67.21

α Aquilæ.

		R.A. h. m. s.	Dec. ° ′ ″
January	21	19 43 27.66	+ 8 28
	28	27.81	
August	7	27.78	
	9	27.76	
	26	27.83	
September	16	27.81	
	17	27.78	33.76
	21	27.75	28.77
	23	27.85	
	28	27.76	32.32
October	1	27.85	
	3	27.82	
	8	27.85	
	15	27.65	32.28
November	2	27.76	

β Aquilæ.

		R.A. h. m. s.	Dec. ° ′ ″
August	7	19 47 56.63	+ 6 2
September	21	56.64	
	23	56.69	
	28	56.65	8.53
October	1	56.59	10.91
	3	56.54	
	8	56.60	
	15	56.67	9.40

α¹ Capricorni.

		R.A. h. m. s.	Dec. ° ′ ″
September	21	20 9 19.73	−12 58
October	1	19.78	
November	6	19.74	11.03

α² Capricorni.

		R.A. h. m. s.	Dec. ° ′ ″
August	9	20 9	−13 0 21.15
September	17	43.55	20.34
	21	43.57	25.57
	28	43.60	18.31
October	1	43.61	
	3	43.70	18.31
	8	43.66	
	15	43.50	19.17
November	6	43.64	19.60

α Cygni.

		R.A. h. m. s.	Dec. ° ′ ″
January	22	20 36 19.17	+44 44
	28	19.03	
August	9	19.10	59.19
September	21	19.24	41.67
November	2	19.09	51.83
	6	19.09	45.31

η Capricorni.

		R.A. h. m. s.	Dec. ° ′ ″
September	16	20 55 51.55	−20 26
	17	51.67	

61¹ Cygni.

		R.A. h. m. s.	Dec. ° ′ ″
October	29	21 0	+38 0 52.39
November	2	10.60	
	6	10.52	48.65

61² Cygni.

		R.A. h. m. s.	Dec. ° ′ ″
November	2	21 0 12.03	+38 0
	6	12.12	46.06

γ Aquarii.

		R.A. h. m. s.	Dec. ° ′ ″
September	17	21 1 25.12	−11 58 29.35
October	15	24.99	38.28

ζ Cygni.

		R.A. h. m. s.	Dec. ° ′ ″
September	21	21 6 33.26	+29 36 46.27
November	2	33.31	53.23
	6	33.24	50.58

ι Capricorni.

		R.A. h. m. s.	Dec. ° ′ ″
October	15	21 13 53.19	−17 28

α Cephei.

		R.A. h. m. s.	Dec. ° ′ ″
September	21	21 14 59.81	+61 57
October	29		3.19
November	6	59.59	5.04

7458.

		R.A. h. m. s.	Dec. ° ′ ″
September	23	21 20	−31 53 17.06

β Aquarii.

		R.A. h. m. s.	Dec. ° ′ ″
October	29	21 23 39.53	− 6 13 42.22

β Cephei.

		R.A. h. m. s.	Dec. ° ′ ″
September	21	21 26 42.40	−69 54
October	9	42.28	

ε Pegasi.

		R.A. h. m. s.	Dec. ° ′ ″
September	23	21 36 48.98	+ 9 11 24.04
October	1	49.04	21.04
	15	48.95	22.04
	29	49.08	21.65
November	2	48.96	25.92

δ Capricorni.

		R.A. h. m. s.	Dec. ° ′ ″
September	17	21 38 45.29	−16 48 15.68

ι Aquarii.

		R.A. h. m. s.	Dec. ° ′ ″
October	15	21 58	−14 35 43.27

α Gruis.

		R.A. h. m. s.	Dec. ° ′ ″
September	21	21 58 45.01	−47 41
October	1		14.81
	3	45.10	
	9	44.96	
	29	45.27	5.14
November	13	45.24	

7714.

		R.A. h. m. s.	Dec. ° ′ ″
September	23	22 1 20.46	−33 16 59.04

7750.

		R.A. h. m. s.	Dec. ° ′ ″
September	23	22 5 47.80	−28 30 28.12

θ Aquarii.

		R.A. h. m. s.	Dec. ° ′ ″
October	15	22 8 54.89	− 8 31 34.46

7861, B. A. C.

		R.A. h. m. s.	Dec. ° ′ ″
September	21	22 26 12.37	−10 22 49.17

ζ Pegasi.

		R.A. h. m. s.	Dec. ° ′ ″
October	9	22 33 58.69	+10 2 59.41
	31	58.84	60.02

α Piscis Australis.

		R.A. h. m. s.	Dec. ° ′ ″
September	21	22 49 20.98	−30 24
	23		54.03
October	1	20.85	60.90
	3	21.07	57.58
	9	20.97	56.49
	15	20.96	56.75
	28	21.00	56.25
	31	21.09	59.20
November	4	20.97	53.30
	6	21.02	56.65
	9	20.92	57.22
	13	21.21	
	14		54.53

α Pegasi.

		R. A.	Dec.
		h. m. s.	° ′ ″
October	1 - -	22 57 17.47	+14 23 56.33
	3 - -	17.51	58.44
	9 - -	17.56	60.28
	28 - -	17.40	59.35
	31 - -	17.47	56.60
Novemder	4 - -	17.53	57.44
	6 - -	17.67	59.03
	9 - -	17.51	
	13 - -	17.51	
	14 - -	17.51	58.92

φ Aquarii.

		R. A.	Dec.
November	13 - -	23 6 33.29	— 6 51
	14 - -	33.10	24.32
December	11 - -	32.93	19.38

ψ³ Aquarii.

		R. A.	Dec.
		h. m. s.	° ′ ″
November	13 - -	23 11 9.37	—10 25 44.48
	14 - -	9.32	44.35
December	11 - -	9.33	46.13

ι Piscium.

		R. A.	Dec.
October	29 - -	23 32 14.21	+ 4 48 50.33
November	9 - -	14.22	

γ Cephei.

		R. A.	Dec.
October	3 - -	23 33 14.26	+76 47 40.50

27 Piscium.

		R. A.	Dec.
		h. m. s.	° ′ ″
December	11 - -	23 50 59.55	— 4 23 17.88

33 Piscium.

		R. A.	Dec.
December	11 - -	23 57 39.26	— 6 32 49.42

Weisse XXIII, 1210.

		R. A.	Dec.
October	31 - -	23 58 38.99	—12 51 27.28

Anonymous.

		R. A.	Dec.
October	31 - -	23 59 42.60	—12 52 6.23

Star / Date	Day	R. A. (h. m.)	N. Dec. (° ′ ″)
θ Andromedæ.			
December	11	0 7	37 50 54.53
	12		52.47
Lalande, 2603.			
January	4	1 18	38 52 34.17
Anonymous.			
January	4	1 18	38 53 52.10
Anonymous.			
January	4	1 18	38 52 42.86
Anonymous.			
January	4	1 18	38 53 2.13
Lalande, 4387.			
January	5	2 15	38 39 42.22
Lalande, 4667.			
January	5	2 23	36 40 11.78
Lalande, 4784.			
January	5	2 28	38 5 0.59
Anonymous.			
January	5	2.34	37 37 33.21
Lalande, 5115.			
January	4	2 35	38 52 21.36
Anonymous.			
January	4	2 48	38 26 39.78
Lalande, 5682.			
January	11	2 57	38 1 0.62
Lalande, 5834.			
January	11	3 2	37 29 47.74
Lalande, 7391.			
January	10	3 52	38 40 25.68
Lalande, 10650.			
February	10	5 32	38 6 53.60
Anonymous.			
February	9	5 33	38 16 33.81
θ Aurigæ.			
February	23	5 50	37 11 47.20
Aurigæ, 1935.			
February	9	5 55	37 57 52.13
Lalande, 11529.			
February	10	5 58	37 59 40.19
Lalande, 12134.			
February	15	6 15	37 23 15.62
Anonymous.			
February	23	6 25	37 49 37.97
Anonymous.			
February	23	6 25	37 49 43.50
Lalande, 13873.			
February	15	7 3	36 22 10.48
Lalande, 14120.			
March	7	7 10	36 56 34.54
Lalande, 14218.			
February	19	7 12	37 2 15.25
Lalande, 14465.			
March	8	7 18	35 6 18.94
Lalande, 14484.			
March	7	7 20	38 28 32.25
Lalande, 14499.			
March	7	7 21	37 4 59.15
α^1 Geminorum.			
March	8	7 24	32 12 43.79
α^2 Geminorum.			
February	19	7 25	32 12 44.70
March	8	7 24	32 12 46.24
Geminorum.			
March	8	7 28	34 55 24.65
Lalande, 14806.			
February	19	7 29	35 22 45.19
Lalande, 15882.			
March	8	7 59	35 53 58.55
Anonymous.			
Febauary	19	8 22	37 45 53.25
Anonymous.			
February	19	8 37	37 35 9.28
Lalande, 21563.			
April	5	11 10	36 18 32.06
Ursæ Majoris, 3965.			
April	10	11 32	35 2 56.67
Lalande, 22565.			
April	10	11 51	37 47 47.72
α Bootis.			
April	10	14 8	19 57 55.82
September	19		57.66
	25		59.90
	27		58.44
	28		59.42
Anonymous.			
April	10	14 8	35 16 54.00
Lalande, 27390?			
May	15	14 52	35 42 6.03
Lalande, 27803.			
April	10	15 7	35 26 41.15
α Coronæ Borealis.			
April	10	15 27	27 13 20.44
κ Coronæ Borealis.			
May	15	15 44	36 7 33.54
Anonymous.			
April	10	16 28	35 48 53.27
-ζ Herculis.			
May	15	16 34	31 52 39.74
α Lyræ.			
April	10	18 31	38 38 50.46
May	15		50.86
September	18		49.61
	19		50.53
	21		51.55
	24		51.04
	25		50.86
December	11		50.05
	12		48.72

LALANDE, 5300.

		R. A.	N. Dec.
		h. m.	° ′ ″
January	9 - - -	2 43	37 47 57.97

ANONYMOUS.

		R. A.	N. Dec.
February	22 - - -		38 55 9.18

ANONYMOUS.

		R. A.	N. Dec.
February	22 - - -		38 55 48.42

ANONYMOUS.

		R. A.	N. Dec.
February	25 - - -		38 53 29.58

β TAURI.

		R. A.	N. Dec.
September	17 - - -	5 16	28 28 30.01

LALANDE, 10650.

		R. A.	N. Dec.
		h. m.	° ′ ″
February	26 - - -	5 31	38 6 54.24

LALANDE, 10666.

		R. A.	N. Dec.
February	26 - - -	5 32	38 7 2.75

AURIGÆ, 2139.

		R. A.	N. Dec.
March	5 - - -	5 56	38 33 38.28
	7 - - -		37.89

LALANDE, 11959.

		R. A.	N. Dec.
March	8 - - -	6 9	38 29 21.97

AURIGÆ, 2239.

		R. A.	N. Dec.
		h. m.	° ′ ″
March	11 - - -	6 44	38 28 9.18

α BOOTIS.

		R. A.	N. Dec.
September	21 - - -	14 8	19 57 57.94

α LYRÆ.

		R. A.	N. Dec.
June	10 - - -	18 31	38 38 49.64
September	17 - -		50.09
	21 - - -		50.21
November	25 - - -		49.23
December	12 - - -		49.88
	13 - - -		51.97
	18 - - -		50.77
	20 - - -		51.93

RIGHT ASCENSIONS AND DECLINATIONS

OF THE

SUN, MOON, AND PLANETS,

AS OBSERVED AT

THE NATIONAL OBSERVATORY

IN THE YEARS

1849 AND 1850.

SUN.

MEAN TIME—WASHINGTON.			Limb observed.	RIGHT ASCENSIONS.			SIDEREAL TIME OF SEMI-DIAMETER PASSING.		
1849.		Equation of time.		Observed.	Computed.	C — O.	Observed.	Computed.	C — O.
		m. s.		h. m. s.	s.	s.	s.	s.	s.
January	12	+ 8 47.05	I.	19 37 6.42	6.24	— 0.18			
			II.	6.26	6.24	— 0.02	70.17	70.25	+ 0.08
March	19	7 50.40	I.	23 56 21.94	21.98	+ 0.04			
			II.	21.92	21.98	0.06	64.44	64.45	0.01
	23	+ 6 37.70	I.	0 10 55.26	55.29	0.03			
			II.	55.12	55.29	0.17	64.32	64.39	+ 0.07
May	16	— 3 54.22	I.	3 33 15.18	15.51	0.33			
			II.	15.11	15.51	+ 0.40	67.18	67.22	+ 0.04
June	5	1 50.45	I.	4 54 11.29	10.75	— 0.54			
			II.	11.39	10.75	0.64	68.60	68.55	— 0.05
	22	— 1 38.05	I.	6 4 41.46	41.28	0.18			
			II.	41.44	41.28	— 0.16	68.88	68.89	+ 0.01
July	13	+ 5 23.08	I.	7 31 14.47	14.61	+ 0.14			
			II.	14.56	14.61	0.05	68.12	68.08	— 0.04
August	27	— 1 16.75	I.	10 24 32.54	32.57	0.03			
			II.	32.47	32.57	0.10	64.56	64.59	+ 0.03
September	7	2 11.51	I.	11 4 25.46	25.82	0.36			
			II.	25.36	25.82	0.46	64.07	64.13	0.06
	11	3 33.72	I.	11 18 49.37	49.60	0.23			
			II.	49.35	49.60	0.25	64.03	64.04	+ 0.01
	15	4 57.39	I.	11 33 11.60	11.91	0.31			
			II.	11.76	11 91	+ 0.15	64.06	63.99	— 0.07
	25	8 25.83	I.	12 9 8.48	8.41	— 0.07			
			II.	8.39	8.41	+ 0.02	64.06	64.11	+ 0.05
	27	9 6.29	I.	12 16 21.15	20.94	— 0.21			
			II.	21.11	20.94	— 0.17	64.15	64.17	+ 0.02
	28	— 9 26.22	I.	12 19 57.10	57.51	+ 0.41			
			II.	57.16	57.51	+ 0.35	64.23	64.20	— 0.03
1850.									
September	24	— 8 1.67	II.	12 4 38.51	38.65	— 0.14			
	28	9 22.76	I & II.	12 19 3.66	3.34	0.32	64.24	64.05	— 0.19
October	3	10 57.12	II.	12 37 11.35	10.62	— 0.73			
	22	15 26.18	I & II.	13 47 36.26	36.82	+ 0.56	65.93	65.83	0.10
	29	16 8.97	I & II.	14 14 29.22	29.12	— 0.10	66.56	66.56	0.00
November	1	16 16.06	I & II.	14 26 11.78	11.73	0.05	66.97	66.90	0.07
	2	16 16.68	II.	14 30 7.71	7.60	— 0.11			
	4	16 16.00	I & II.	14 38 1.50	1.57	+ 0.07	67.30	67.24	0.06
	11	15 47.10	II.	15 6 6.36	6.43	+ 0.07			
	13	15 30.58	I & II.	15 14 16.03	16.02	— 0.01	68.25	68.31	
	14	15 21.49	I & II.	15 18 21.47	21.71	+ 0.24	68.52	68.43	0.09
	31	13 54.49	I.	15 47 24.84	25.18	0.34			
	22	13 38.97	I & II.	15 51 36.95	37.56	+ 0.61	69.66	69.36	— 0.30
	25	— 12 46.23	I & II.	16 4 19.60	19.38	— 0.22	69.41	69.67	+ 0.26

MOON.

Mean time—Washington.		Mean time—Washington.	Limb observed.	Right ascensions. Observed.	Right ascensions. Computed.	Right ascensions. C — O.	Sidereal time of semi-diameter passing. Observed.	Sidereal time of semi-diameter passing. Computed.	Sidereal time of semi-diameter passing. C — O.
1849.		h. m. s.		h. m. s.	s.	s.	s.	s.	s.
January	4	8 20 34.73	I.	3 18 42.26	43.30	+ 1.04			
February	3	9 5 23.16	I.	6 1 54.72	55.40	0.68			
	6	11 58 23.30	I.	9 7 12.86	14.02	1.16	68.75	68.66	— 0.09
	6	11 58 23.30	II.	9 7 13.04	14.02	0.98			
	7	12 51 28.85	II.	10 4 23.78	25.15	1.37			
March	7	11 31 47.07	I.	10 34 52.38	53.45	1.07			
	8	12 20 16.40	I.	11 27 26.17	26.98	0.81	64.31	64.26	— 0.05
	8	12 20 16.40	II.	11 27 26.28	26.98	0.70			
April	5	11 1 29.86	I.	11 58 50.21	50.55	0.34			
	6	11 46 56.08	I.	12 48 20.51	21.00	0.49	62.61	62.68	+ 0.07
	6	11 46 56.08	II.	12 48 20.37	21.00	0.63			
	10	14 47 33.96	II.	16 5 14.20	14.67	0.47			
	30	7 24 47.67	I.	10 0 6.24	6.95	0.71			
May	2	8 59 38.46	I.	11 43 5.72	6.59	0.87			
	31	8 28 17.81	I.	13 6 0.02	0.61	0.59			
June	4	11 26 56.71	I.	16 20 54.50	55.15	0.65			
July	2	10 10 51.70	I.	16 55 0.58	1.14	0.56			
August	27	7 35 24.44	I.	17 59 54.86	55.14	0.28			
September	25	7 3 36.13	I.	19 22 21.35	21.58	0.23			
	27	8 39 31.03	I.	21 6 25.10	25.31	0.21			
	28	9 27 27.13	I.	21 58 25.63	26.01	0.38			
October	26	8 5 15.21	I.	22 26 23.68	24.23	+ 0.55			
1850.									
February	23	10 3 41.81	I.	8 18 16.35	17.19	+ 0.84			
	25	11 59 50.01	I.	10 22 36.79	37.97	1.18			
March	23	8 50 48.82	I.	8 55 34.91	36.26	1.35			
April	29	15 6 6.10	II.	17 37 44.93	45.29	0.36			
May	20	8 12 14.07	I.	12 5 43.78	44.49	+ 0.71			
	21	8 59 14.66	I.	12 57 38.79	37.64	— 1.15			
	27	13 48 5.00	II.	18 9 55.92	56.51	+ 0.59			
June	19	8 32 40.63	I.	14 24 20.54	21.21	0.67			
	24	12 33 3.21	II.	18 44 5.40	7.64	2.24			
July	19	8 52 20.25	I.	16 42 20.10	20.84	0.74			
	23	12 4 42.81	I & II.	20 10 55.47	56.12	0.65	64.44		
	24	12 52 15.77	II.	21 1 37.81	39.34	1.53			
September	16	8 44 30.90	I.	20 27 5.89	6.30	0.41			
	17	9 30 50.40	I.	21 17 29.39	29.78	0.39			
October	8	2 31 38.62	I.	15 39 56.76	59.18	2.42			
November	13	7 33 35.49	I.	23 4 39.16	39.71	0.55			
	14	8 17 18.40	I.	23 52 25.12	25.79	0.67			
December	13	7 37 52.10	I.	1 7 12.21	13.18	+ 0.97			

MERCURY.

Mean Time—Washington.			Limb observed.	Right Ascensions. Observed.	Computed.	C — O.
1849.		h. m. s.		h. m. s.	s.	s.
April	10	22 47 48.91	II.	0 6 48.05	47.59	— 0.46
	11	22 49 49.71	II.	0 12 45.73	45.86	+ 0.13
August	27	12 42 2.91	I.	11 5 25.43	. 25.71	0.28
September	11	1 9 55.15	I.	12 32 30.54	30.73	+ 0.19
1850.						
May	1	0 55 38.74	I.	3 32 52.33	52.75	+ 0.42
September	24	1 9 28.81	I.	13 22 21.74	21.60	— 0.14
November	8	23 2 31.05	II.	14 16 24.56	24.42	— 0.14
	10	23 6 51.49	II.	14 28 38.82	39.46	+ 0.64
	12	23 11 20.14	II.	14 41 1.32	1.31	— 0.01
	13	23 13 36.22	Centre.	14 47 14.32	14.60	+ 0.28

VENUS.

Mean Time—Washington.			Limb observed.	Right Ascensions. Observed.	Computed.	C — O.
1849.						
April	2	2 37 25.86	I.	3 21 33.74	34.69	+ 0.95
	11	2 19 16.73	I.	3 38 50.60	52.04	1.44
	12	1 16 51.50	I.	2 40 11.67	13.09	1.42
May	18	23 9 46.68	II.	2 58 38.48	40.55	+ 2.07
October	24	21 52 45.13	II.	12 8 16.43	16.32	— 0.11
1850.						
April	29	0 55 48.12	I.	3 25 8.63	8.06	— 0.57
May	1	0 57 53.22	I.	3 35 7.87	8.43	+ 0.56
June	7	1 46 30.93	I.	6 49 45.46	45.59	+ 0.13
July	5	2 18 32.61	I.	9 12 15.51	15.02	— 0.49
	11	2 23 11.73	I.	9 40 35.22	35.49	+ 0.23
September	24	2 45 18.18	I.	14 57 27.01	27.06	+ 0.05
October	1	2 44 53.79	I.	15 26 38.26	37.96	— 0.30
	3	2 46 20.09	I.	15 34 57.90	56.82	1.08
	5	2 46 43.88	I.	15 43 14.86	14.28	0.58
	7	2 47 6.57	I.	15 51 30.72	29.69	1.03
	8	2 47 16.34	I.	15 55 37.06	36.43	0.63
	9	2 47 25.78	I.	15 59 43.07	42.41	0.66
	10	2 47 34.26	I.	16 3 48.13	47.53	0.60
	22	2 49 25.96	I.	16 50 58.75	57.99	0.76
	28	2 45 19.03	I.	17 12 30.49	29.06	1.43
	29	2 44 45.71	I.	17 15 53.62	52.53	1.09
November	1	2 42 42.97	I.	17 25 40.22	39.03	1.19
	2	2 41 53.31	I.	17 28 46.98	45.83	1.15
	4	2 39 59.73	I.	17 34 46.19	44.94	1.25
	9	2 33 39.52	I.	17 48 7.71	6.35	1.36
	13	2 26 38.38	I.	17 56 51.64	49.99	1.65
	14	2 24 34.22	I.	17 58 43.70	42.12	1.58
	26	1 47 57.66	I.	18 9 19.79	17.51	— 2.28

MARS.

Mean time—Washington.		Limb observed.	Right ascensions. Observed.	Right ascensions. Computed.	Right ascensions. C — O.	Sidereal time of semi-diameter passing. Observed.	Sidereal time of semi-diameter passing. Computed.	Sidereal time of semi-diameter passing. C — O.
1850.								
		h. m. s.	h. m. s.	s.	s.	s.	s.	s.
January	12	9 40 35.90	I & II.	5 9 31.42	30.12	— 1.30	0.53	0.48	— 0.05
	14	9 31 33.68	I & II.	5 8 20.82	19.60	1.22	0.64	0.48	0 16
	30	8 27 43.69	I & II.	5 7 25.24	24.03	1.21	0.48	0.41	0.07
February	11	7 48 26.74	I & II.	5 15 20.49	19.31	1.18	0.43	0.36	— 0.07
	16	7 33 51.21	I & II.	5 20 25.33	24.50	0.83	0.30	0.34	+ 0.04
	26	7 7 15.04	I.	5 33 10.32	9.47	— 0.85			

JUPITER.

1849.									
April	5	8 5 14.38	I & II.	9 1 5.77	5.29	— 0.48	1.38	1.45	+ 0.07
	6	8 0 17.15	I & II.	9 1 4.28	3.76	0.52	1.44	1.45	0.01
	12	7 36 48.49	I & II.	9 1 11.07	10.39	0.68	1.39	1.42	0.03
	16	7 21 24.12	I & II.	9 1 30.38	29.69	— 0.69	1.40	1.41	+ 0.01
1850.									
February	19	13 27 11.11	I & II.	11 26 32.93	32.06	— 0.87	1.48	1.49	+ 0.01
	22	13 14 5.04	I & II	11 25 14.37	13.69	0.68	1.45	1.50	+ 0.05
	25	13 0 56.71	I & II	11 23 53.54	52.74	0.80	1.54	1.50	— 0.04
	26	12 56 33.38	I & II.	11 23 26.04	25.26	0.78	1.53	1.50	— 0.03
March	7	12 16 56.22	I & II.	11 19 11.35	10.50	0.85	1.40	1.51	+ 0.11
	11	11 59 17.86	I & II.	11 17 16.29	15.40	0.89	1.52	1.51	— 0.01
	23	11 6 32.72	I & II.	11 11 41.12	40.04	1.08	1.50	1.50	0.00
April	4	10 14 27.51	I & II.	11 6 45.97	45.15	0.82	1.41	1.48	+ 0.07
	16	9 23 29.81	I.	11 2 58.53	57.66	0.87			
	17	9 19 18.67	I & II.	11 2 43.25	42.43	0.82	1.47	1.44	— 0.03
	18	9 15 8.35	I.	11 2 28.75	27.82	0.93			
	29	8 29 54.89	I & II.	11 0 29.99	29.17	0.82	1.40	1.39	— 0.01
May	1	8 21 50.00	I & II.	11 0 16.89	16.13	0.76	1.35	1.38	+ 0.03
	2	8 17 48.88	I.	11 0 11.66	10.61	— 1.05			

SATURN.

1850.									
November	14	9 24 24.28	I.	0 59 42.73	41.31	— 1.42			
December	13	7 26 51.70	I & II.	0 56 10.98	9.91	1.07	0.56	0.61	+ 0.05
	18	7 7 8.44	I.	0 56 7.26	6.03	— 1.23			

URANUS.

1850.									
November	14	10 7 1.26		1 42 26.71	37.46	+ 10.75			
December	26	7 18 9.96		1 38 43.05	53.50	+ 10.45			

NEPTUNE.

MEAN TIME—WASHINGTON.			Limb observed.	RIGHT ASCENSIONS. Observed.	Computed.	C — O
1849.		h. m. s.		° ′ ″	″	″
September	7	11 12 42.10		22 21 10.30	10.43	+ 0.13
	10	11 0 36.42		22 20 52.29	52.32	0.03
	11	10 56 34.57		22 20 46.33	46.40	0.07
	13	10 48 31.01		22 20 34.55	34.71	0.16
	15	10 40 27.51		22 20 22.83	23.21	0.38
	18	10 28 22.87		22 20 5.86	5.94	0.08
	21	10 16 18.61		22 19 49.27	49.32	0.05
	25	10 0 13.83		22 19 28.06	28.10	0.04
	28	9 48 10.92		22 19 12.82	12.89	0.07
October	8	9 8 6.41		22 18 27.25	27.28	+ 0.03
	9	9 4 6.52		22 18 23.26	23.13	— 0.13
	24	8 4 18.99		22 17 34.20	34.16	— 0.04
November	3	7 24 41.56		22 17 15.79	15.80	+ 0.01
1850.						
September	21	10 25 59.49		22 28 34.18	34.37	+ 0.19
	23	10 17 57.16		22 28 23.64	23.39	— 0.25
October	1	9 45 48.10		22 27 41.71	41.85	+ 0.14
	3	9 38 45.98		22 27 31.38	32.17	0.80
	7	9 21 44.68		22 27 13.66	13.79	0.13
	9	9 13 44.33		22 27 5.08	5.11	+ 0.03
	22	8 21 50.73		22 26 18.15	18.13	— 0.02
	31	7 46 5.71		22 25 56.24	56.26	+ 0.02
November	1	7 42 7.93		22 25 54.37	54.40	0.03
	2	7 38 10.33		22 25 52.67	52.69	0.02
	4	7 30 15.44		22 25 49.58	49.61	0.03
	5	7 26 18.19		22 25 48.24	48.25	0.01
	9	7 10 30.32		22 25 43.99	44.10	0.11
	13	6 54 44.63		22 25 41.93	42.05	0.12
	21	6 23 19.27		22 25 43.86	43.93	+ 0.07

METIS.

1849.						
September	11	10 37 11.53		22 1 20.11	19.99	— 0.12
	13	10 27 44.95		21 59 45.08	44.93	0.15
	15	10 18 23.53		21 58 15.23	14.96	0.27
	18	10 4 31.81		21 56 10.88	10.67	0.21
	21	9 50 53.85		21 54 20.34	20.23	0.11
	25	9 33 6.70		21 52 16.48	16.36	0.12
	28	9 20 4.84		21 51 2.13	1.88	— 0.25

CERES.

1850.						
November	1	9 21 14.78		0 5 17.50	29.69	+ 12.19

VESTA.

1850.						
February	26	8 26 50.41		6 52 58.76	60.54	+ 1.78
March	11	7 38 11.65		6 55 27.19	28.85	+ 1.66

MEAN TIME—WASHINGTON.			Limb observed.	RIGHT ASCENSIONS. Observed.	Computed.	C — O.
HEBE.						
1850.		h. m. s.		° ′ ″	″	″
il	6	12 0 0.10		13 0 29.01	27.86	— 1.15
IRIS.						
1850.						
r	9	12 28 59.90		15 39 39.84	39.75	— 0.09
	20	11 34 45.20		15 28 38.34	38.50	+ 0.16
r	1	8 21 28.10		15 0 24.88		
FLORA.						
1850.						
ober	1	11 33 40.21		0 15 51.54	54.29	+ 2.75
	3	11 24 5.30		0 14 8.17	11.51	3.34
	7	11 5 4.50		0 10 50.45	53.36	+ 2.91
	31	9 20 4.83		0 0 10.80		
ember	13	8 29 0.88		0 0 13.67		
HYGEA.						
1850.						
r	1	12 46 10.53		19 25 50.79	38 30.77	+ 12 39.98
	11	11 58 12.12		19 17 10.07	30 14.89	13 4.82
	19	11 19 34.10		19 9 58.15	23 33.88	13 35.73
	29	10 32 21.64		19 2 3.50	15 53 37	+ 13 49.87
VICTORIA.						
1850.						
ober	31	8 43 49.84		23 23 49.85	49.86	+ 0.01
COMET 1850 I.						
1850.						
e	10	10 59 49.43		16 16 24.52		
	19	9 24 41.79		15 16 30.26		
	24	8 38 16.12		14 49 39.76		
	25	8 28 24.85		14 43 43.43		

SUN.

Mean time—Washington. 1849.		Equation of time.	Apparent declinations. Observed.	Computed.	C — O	Vertical semi-diameters. Observed.	Computed.	C — O
		m. s.	° ′ ″	″	″	′ ″	″	″
January	25	+ 12 44.6	− 18 51 25.48	25.60	− 0.12	16 17.61	15.71	− 1.90
February	16	14 20.2	12 10 54.75	52.60	+ 2.15	15.46	12.03	3.43
	17	14 15.7	11 49 52.23	53.07	− 0.84	13.64	11.81	1.83
	24	13 25.9	9 18 7.16	5.61	+ 1.55	12.38	10.23	2.15
March	17	8 26.0	− 1 11 3.51	2.99	0.52	6.19	4.87	1.32
April	3	3 15.9	+ 5 27 40.47	41.23	0.76	2.62	0.38	2.24
	6	2 22.7	6 35 57.90	58.44	+ 0.54	15 61.25	59.38	1.87
	7	2 5.4	6 58 32.19	31.04	− 1.15	62.54	59.11	3.43
	12	+ 0 42.3	8 49 20.34	20.82	+ 0.48	61.09	57.73	3.36
May	3	− 3 16.2	15 46 59.63	60.63	1.00	54.71	52.45	2.26
	17	− 3 53.6	19 24 42.91	44.18	1.27	49.75	49.49	0.26
June	19	+ 0 58.8	23 26 37.99	38.84	+ 0.85	47.35	45.37	1.98
	21	1 25.0	23 27 24.36	22.41	− 1.95	47.54	45.29	2.25
July	19	+ 5 56.8	+ 20 48 22.17	23.68	+ 1.51	48.74	45.71	3.03
September	26	− 8 46.2	− 1 22 53.11	52.71	0.40	61.56	59.28	2.28
	29	9 45.9	2 33 3.24	3.20	0.04	16 1.78	0.12	1.66
October	27	16 0.5	12 55 27.37	25.04	2.33	9.41	7.71	1.70
November	5	− 16 13.8	− 15 48 43.40	42.26	+ 1.14	11.49	9.93	− 1.56

MOON.

Mean time—Washington. 1849.			Limb observed.	Apparent declinations. Observed.	Computed.	C — O. N. L.	C — O. S. L.	Reduction made for defective illumination.	Vertical semi-diameters. Observed.	Computed.	C — O.
		h. m. s.		° ′ ″	″	″	″	″	′ ″	′ ″	″
January	4	8 20 35.7	S.	+ 13 28 18.19	26.98		+ 8.79			16 22.23	
February	6	11 58 24.3	N.	14 2 17.45	16.77	− 0.68		+ 0.26	16 4.08	16 0.00	− 4.08
			S.	9.30	16.77		7.47				
March	31	6 48 45.9	N.	17 51 25.68	27.27	+ 1.59				15 57.24	
April	5	11 1 30.3	N.	+ 1 47 41.66	41.94	0.28				15 16.26	
June	4	11 26 57.4	N.	− 16 26 7.60	13.97	6.37				14 42.52	
July	3	10 58 3.1	N.	18 42 28.92	34.72	+ 5.80		− 3.22	14 46.22	14 43.09	− 3.13
			S.	35.19	34.72		+ 0.47				
	30	8 53 54.9	N.	18 18 47.54	54.86	− 6.32				14 44.63	
September	27	8 39 31.3	S.	14 54 6.01	6.85		− 0.84			15 6.17	
	28	9 27 27.5	S.	11 52 49.43	49.20		+ 0.23			15 16.86	
October	25	7 18 7.1	S.	13 29 51.96	50.56		+ 1.40			15 6.08	
	26	8 5 15.8	S.	10 7 3.99	4.51		− 0.52			15 18.26	
	27	8 52 48.8	S.	− 6 7 40.95	42.15		− 1.20			15 32.18	

MEAN TIME—WASHINGTON.			Limb observed.	APPARENT DECLINATIONS.			VERTICAL SEMI-DIAMETERS.		
				Observed.	Computed.	C — O	Observed.	Computed.	C — O
VENUS.									
1849.		h. m s.		° ′ ″	″	″	″	″	″
February	10	3 3 19.8	N. & S.	+ 3 22 43.78	46.26	+ 2.48	10.72	9.70	— 1.02
March	23	2 49 31.5	N. & S.	21 12 23.90	23.21	0.21	16.77	15.21	1.56
	31	2 40 25.4	N. & S.	23 24 12.10	13.76	1.66	17.95	17.06	0.89
April	3	2 35 49.9	N. & S.	24 4 31.73	33.36	1.63	18.34	17.85	0.49
	12	2 16 43.1	N. & S.	24 31 17.79	19.49	1.70	22.18	20.56	1.62
May	3	0 47 46.8	N. & S.	24 23 57.84	64.59	6.75	28.76	27.53	1.23
	18	23 9 48.7	N. & S.	18 50 (10.37)	21.03	+ (11.34)	29.03	27.99	1.04
September	28	21 36 36.0	N. & S.	12 4 50.31	49.35	— 0.96	7.92	6.79	1.13
October	8	21 43 11.0	N. & S.	+ 8 3 50.75	50.37	— 0.38	7.28	6.55	0.83
November	4	21 59 26.1	N. & S.	— 4 24 38.33	36.33	+ 2.00	6.72	5.80	— 0.92
METIS.°									
1849.									
September	27	9 24 23.5	Centre.	— 22 12 25.08	8.50	+ 16.58			
	28	9 20 4.6		22 11 21.95	5.65	16.30			
October	8	8 38 36.6		21 50 23.07	15.73	8.34			
	11	8 26 46.2		21 40 44.34	34.00	10.34			
CERES.									
1849.									
July	30	°9 28 21.5	Centre.	— 29 11 19.65	33.01	— 13.36			
JUPITER.									
1849.									
February	6	12 11 57.0	N. & S.	+ 16 34 41.59	44.24	+ 2.65	22.28	21.10	— 1.18
March	23	8 56 49.1	N. & S.	17 55 56.73	59.17	2.44	20.87	19.80	1.07
	31	8 24 2.9	N. & S.	18 0 10.72	16.33	5.61	20.24	19.39	0.85
April	5	8 4 2.9	N. & S.	18 1 8.10	10.03	1.93	19.96	19.14	0.82
	6	8 1 37.5	N. & S.	18 1 3.79	11.03	7.24	21.62	19.09	2.53
	11	7 40 40.7	N. & S.	+ 18 0 24.42	27.47	+ 3.05	20.19	18.76	— 1.43
NEPTUNE.									
1849.									
September	24	†10 4 14.7	Centre.	— 11 13 7.51	6.93	+ 0.58			
	28	9 48 11.1		11 15 1.99	2.28	— 0.29			
October	8	9 8 5.2		11 19 14.43	17.68	3.25			
	11	8 56 6.5		11 20 21.35	23.78	2.43			
	25	8 0 20.9		11 24 19.76	20.51	0.75			
	27	7 52 25.1		11 24 43.22	43.86	0.64			
November	2	7 28 37.7		11 25 36.09	37.40	1.31			
	7	7 8 54.1		— 11 26 1.17	1.44	— 0.27			

° Compared with Hind's Ephemeris, Astronomical Notices, vol. 9, page 190.
† Mean time computed from observed apparent right ascension.

FLORA.

MEAN TIME—WASHINGTON.			Limb observed	APPARENT DECLINATIONS. Observed.	Computed.	C — O
1850.		h. m. s.		° ′ ″	″	″
October	16		Centre.	— 12 9 27.65		
	21			10 25.66		
	22			10 52.87		
	31			11 52 5.39		
November	4			34 19.82		
	13			— 10 40 50.48		

VICTORIA.

MEAN TIME—WASHINGTON.			Limb observed	Observed.	Computed.	C — O
1850.						
November	9°	8 11 37.4	Centre.	5 22 40.77	35.82	— 4.95

NEPTUNE.

MEAN TIME—WASHINGTON.			Limb observed	Observed.	Computed.	C — O
1850.						
September	21	10 25 59.7	Centre.	— 10 25 23.38	24.84	— 1.46
	23	10 17 56.9		10 26 27.84	28.63	0.79
	24	10 13 55.6		10 26 58.42	59.97	— 1.55
	25	10 9 54.4		10 27 31.68	30.93	+ 0.75
October	1	9 45 48.3		10 30 27.88	27.92	— 0.04
	2	9 41 47.5		10 30 54.13	55.84	1.71
	3	9 37 46.8		10 31 20.79	23.29	— 2.50
	4	9 33 46.2		10 31 51.39	50.25	+ 1.14
	5	9 29 45.7		10 32 17.15	16.72	+ 0.43
	7	9 21 44.8		10 33 5.85	8.13	— 2.28
	8	9 17 44.5		10 33 32.88	33.04	0.16
	9	9 13 44.3		10 33 56.86	57.39	0.53
	12	9 1 44.4		10 35 6.28	7.09	0.81
	14	8 53 44.8		10 35 50.07	50.66	0.59
	15	8 49 45.2		10 36 8.86	11.55	2.69
	16	8 45 45.7		10 36 31.64	31.82	0.18
	19	8 33 47.7		10 37 26.33	28.98	2.65
	21	8 25 49.6		10 38 3.80	3.96	— 0.16
	22	8 21 50.7		10 38 21.23	20.46	+ 0.77
	28	7 57 59.6		10 39 43.03	45.55	— 2.52
	29	7 54 1.6		10 39 55.40	57.36	1.96
	30	7 50 3.6		10 40 6.85	8.47	1.62
	31	7 46 5.7		10 40 18.14	18.88	0.74
November	1	7 42 8.0		10 40 28.33	28.58	0.25
	2	7 38 10.4		10 40 36.35	37.56	— 1.21
	4	7 30 15.5		10 40 53.49	53.35	+ 0.14
	5	7 26 18.2		10 40 59.10	0.14	— 1.04
	6	7 22 21.1		10 40 5.18	6.20	1.02
	7	7 18 24.1		10 40 10.50	11.52	1.02
	9	7 10 30.5		10 40 17.73	19.97	2.24
	10	7 6 33.8		10 40 22.86	23.09	0.23
	13	6 54 44.7		10 40 25.64	27.98	2.34
	14	6 50 48.6		10 40 26.46	28.12	1.76
	15	6 46 52.6		10 40 27.19	27.50	0.31
	18	6 35 5.4		10 40 18.94	21.12	2.18
	24	6 11 34.5		10 40 44.89	48.08	3.19
	27	5 59 50.8		10 40 21.12	21.41	0.29
	30	5 48 8.2		— 10 39 47.22	48.00	— 0.78

° Mean time and declination computed from Villarceaus' Ephemeris.

SUN.

MEAN TIME—WASHINGTON.		Limb observed.	RIGHT ASCENSIONS.			SIDEREAL TIMES OF SEMI-DIAMETER PASSING.			Limb observed.	DECLINATIONS.			SEMI-DIAMETERS.			Observer.
1849.	Equation of time.		Observed.	Comp.	C — O.	Obs'd.	Comp.	C — O.		Observed.	Comp.	C — O.	Obs'd.	Comp.	C — O.	
	m. s.		h. m. s.	s.	s.	m. s.	m. s.	s.		° ′ ″	″	″	″	″	″	
Jan. 23	+ 12 26.3		20 23 58.29	58.16	— 0.13	1 9.20	1 9.16	—0.04								
25	12 44.6					8.83	8.94	+ .11		— 18 51 25.27	25.48	+ 0.21	16 17.32	15.71	— 1.61	
Feb. 10	14 32.1		21 37 12.53	12.40	.13	7.17	7.12	— .05								
15	14 24.0		21 56	46.96		6.61	6.58	— .03								
Mar. 19	9 50.4		23 56 22.37	21.98	— .39	4.23	4.45	+ .22								
22	6 56.0		0 7 17.07	17.09	+ .02	4.44	4.40	— .04								
24	6 19.3		0 14 33.32	33.43	+ .11	4.37	4.38	+ .01		+ 1 34 42.75	39.38	— 3.37	16 2.31	2.92	+ 0.61	
31	4 10.4		0 40 0.10	0.01	— .09	4.46	4.41	— .05								
April 2	3 34.0		0 47 16.59	16.60	+ .01	4.46	4.45	.01								
5	2 40.3		0 58 12.25	12.40	+ .15	4.57	4.53	.04								
7	+ 2 5.4		1 5 30.77	30.49	— .28	4.63	4.59	.04								
23	— 1 44.2		2 4 40.48	40.31	.17	5.41	5.41	.00		12 39 28.28	24.46	3.82	15 56.47	54.81	— 1.66	
May 4	3 22.6		2 46 26.23	26.14	.09	6.30	6.24	.06								
12	3 53.4		3 17 29.99	29.64	.35	6.97	6.90	.07		18 13 48.84	41.23	7.61	15 50.35	50.49	+ 0.14	
17	3 53.6		3 37 13.51	13.45	.06	7.36	7.30	— .06		19 24 45.05	44.18	0.87	15 49.47	49.49	+ 0.02	
21	3 43.4		3 53 11.01	10.92	.09	7.61	7.62	+ .01					15 48.76	48.76	+ 0.00	
23	— 3 34.9		4 1 13.02	12.93	.09	7.72	7.76	+ .04		20 39 10.27	8.45	— 1.82	15 50.33	48.42	— 1.91	
June 18	+ 0 45.7		5 48 2.79	2.60	.19	8.90	8.89	— .01								
21	1 25.0		6 0 31.71	31.63	.08	8.92	8.90	.02								
22	1 38.0		6 4 41.55	41.28	.27	8.91	8.89	— .02								
July 19	5 56.8		7 55 28.04	27.77	— .27	7.60	7.64	+ .04		20 48 18.50	23.68	+ 5.18	15 43.86	45.71	+ 1.85	
Aug. 25	1 50.3		10 17 12.96	13.16	+ .30	4.76	4.70	— .06								
27	+ 1 16.7		10 24 32.85	32.57	— .28	4.53	4.59	+ .06		+ 9 57 22.78	25.05	2.27	15 49.57	51.72	2.15	
Sept. 3	— 0 52.0		10 49 59.60	59.35	.25	4.13	4.25	+ .12								
10	3 13.0		11 15 13.86	13.83	.03	4.11	4.06	— .05								
14	4 36.4		11 29 36.51	36.41	— .10	3.89	4.00	+ .11								
17	5 39.4		11 40 22.83	22.86	+ .03	3.94	3.99	.05								
24	8 5.4		12 5 32.36	32.38	+ .02	3.96	4.08	.12								
25	8 25.8		12 9 8.48	8.41	— .07	4.10	4.11	.01		— 0 59 29.67	27.70	1.97	15 56.03	59.00	2.97	
29	9 45.8		12 23 34.17	34.30	+ .13	4.17	4.23	.06								
Oct. 20	15 8.4		13 40	58.51		5.65	5.66	+ .01								
Nov. 2	16 16.5		14 31 5.44	5.37	— .07	7.07	7.04	— .03								
3	16 16.5		14 35 2.12	2.04	.08	7.13	7.16	+ .03								
5	16 13.8		14 42 57.96	57.87	.09	7.49	7.39	— .10								
13	15 28.6		15 15 15.97	15.56	.41	8.35	8.35	.00								
15	15 8.8		15 23 28.61	28.60	.01	8.50	8.59	+ .09								
20	— 14 4.5		15 44 15.97	15.78	— .19	9.16	9.15	— .01		— 19 57 59.14	57.26	+ 1.88	16 9.24	13.12	+ 3.88	

MOON.

Mean time—Washington. 1849.		Limb observed.	Right ascensions. Observed.	Comp.	C — O.	Sidereal times of semi-diameter passing. Obs'd.	Comp.	C — O.	Limb observed.	Declinations. Observed.	Comp.	C — O.	Semi-diameters. Obs'd.	Comp.	C — O.	Observer.
	h. m. s		h. m. s.	s.	s.	s.	s.	s.		° ′ ″	″	″	″	′ ″	″	
Jan.	4 8 20 34.9	I.	3 18 42.42	43.27	+ 0.85		1 10.18		S.	+ 13 38 25.74	27.10	+ 1.36		16 22.23		
Feb.	3 9 5 23.5	I.	6 1 55.01	55.35	0.34		11.60									
	6 11 58 23.2	I.	9 7 12.83	13.93	1.10		8.66		S.	14 2 13.58	16.77	3.19		16 0.00		
Mar.	7 11 31 47.2	I.	10 34 52.51	53.42	0.91		5.54									
	9 13 7 3.1	II.	12 18 17.17	18.02	0.85		3.31									
	31 6 48 44.7	I.	7 25 41.02	42.11	1.09		9.85									
April	2 8 36 30.4	I.	9 31 37.26	38.00	0.74		6.95		N.	13 17 4.56	4.97	0.41		15 41.11		
	5 11 1 29.6	I.	11 58 49.94	50.56	0.61		3.24		N.	1 47 41.44	41.92	0.48		15 16.26		
May	2 8 59 38.9	I.	11 43 6.12	6.56	0.44		3.21		N.	+ 8 12 53.99	56.95	+ 2.96		15 15.12		
	31 8 28 17.5	I.	13 5 59.66	60.58	0.92		2.25									
June	4 11 26 57.1	I.	16 20 54.89	55.15	0.26		3.49									
	30 8 39 21.9	I.	15 15 22.64	23.51	0.86		2.77									
July	2 10 10 51.8	I.	16 55 0.63	1.13	0.50		3.90									
Aug.	27 7 35 24.5	I.	17 59 54.95	55.14	0.19		4.67									
	30 9 59 56.1	I.	20 36 39.97	40.21	0.24		4.91									
Sept.	25 7 3 36.2	I.	19 22 21.38	21.58	0.20		4.88		S.	— 18 29 25.88	29.20	— 3.32		14 50.86		
	27 8 39 31.1	I.	21 6 25.14	25.30	0.16		4.77		S.	14 54 6.50	6.84	0.34		15 6.16		
	28 9 27 27.3	I.	21 58 25.83	26.01	0.18		4.72		S.	11 52 44.67	49.21	4.54		15 16.85		
Oct.	24 6 30 59.9	I.	20 43 59.79	60.02	0.23		4.43									
	26 8 5 15.2	I.	22 26 23.61	24.26	0.65		4.40									
	27 8 54 15.6	I.	23 18 0.87	1.55	0.68		4.77		S.	— 6 7 35.49	42.15	— 6.66		15 32.18		
Dec.	24 7 46 25.1	I.	2 0 7.23	8.12	0.89		6.78									
	27 10 35 11.7	I.	5 1 11.26	12.57	+ 1.31		13.17			+ 17 57 31.55	41.41	+ 9.86		16 38.51		

MERCURY.

Mean time—Washington. 1849.		Limb observed.	Right ascensions. Observed.	Comp.	C — O.	Sidereal times. Obs'd.	Comp.	C — O.	Limb observed.	Declinations. Observed.	Comp.	C — O.	Semi-diameters. Obs'd.	Comp.	C — O.	Observer.
May	21 1 15 49.7	I.	5 12 54.93	55.29	+ .36		.22			+ 25 14 27.46	23.54	— 3.92	3.36	2.99	— .37	
	23 1 22 18.2	I.	5 27 17.71	18.00	.29		.23			25 30 25.84	26.66	+ 0.82	3.12	3.11	— .01	
July	22 22 41 14.0	II.	6 46 16.95	17.29	.34		.26									
Aug.	25 0 36 46.3	I.	10 52 14.43	14.81	+ .38		.16									
	27 0 42 3.2	I.	11 5 25.81	25.70	— .11		.16			+ 7 9 48.53	48.68	+ 0.15	3.18	3.30	+ .12	
Sept.	10 1 8 35.3	I.	12 27 14.36	13.92	— .44		.17		Cen.	— 3 21 52.57	54.64	— 2.07				

VENUS.

Mean time—Washington. 1849.		Limb observed.	Right ascensions. Observed.	Comp.	C — O.	Sidereal times. Obs'd.	Comp.	C — O.	Limb observed.	Declinations. Observed.	Comp.	C — O.	Semi-diameters. Obs'd.	Comp.	C — O.	Observer.
Feb.	10 3 3 19.8	I.	0 26 26.52	27.73	+ 1.21		0.64			+ 3 22 44.40	46.26	+ 1.86	11.59	9.70	—1.89	
Mar.	22 2 50 24.3	I.	2 51 11.01	12.23	1.22		1.06			20 53 35.01	36.04	1.03	15.94	15.00	0.94	
	24 2 48 35.8	I.	2 57 15.74	16.56	0.82		1.09			21 30 39.76	40.87	1.11	16.07	15.42	0.65	
April	2 2 37 26.8	I.	3 21 33.26	34.70	1.44		1.27			23 51 41.66	42.22	0.56	18.64	17.58	1.06	
May	2 0 53 32.1	I.	3 35 37.20	39.48	2.28		1.99									
	18 23 9 48.7	II	2 58 38.01	40.54	2.53		1.99			18 50 11.10	21.03	9.93	28.63	27.99	—0.64	
	20 22 58 27.9	II.	2 55 8.60	10.94	2.34		1.95			18 5 39.96	48.96	9.00	27.09	27.54	+ .45	
	22 22 47 37.6	II.	2 52 9.96	11.99	+ 2.03		1.89			17 23 29.45	40.18	10.73	26.63	27.02	.39	
Oct.	22 21 51 34.6	II.	11 59 12.72	12.64	— 0.08		0.41			+ 1 45	10.96		6.06	6.09	+ .03	
Nov.	19 22 10 14.8	II.	14 8 19.78	19.37	— 0.41		0.38			— 11 17 15.95	14.07	+ 1.88	6.64	5.53	—1.11	

MARS.

Mean time—Washington. 1849.		Limb observed.	Right ascensions. Observed.	Comp.	C — O.	Sidereal times. Obs'd.	Comp.	C — O.	Limb observed.	Declinations. Observed.	Comp.	C — O.	Semi-diameters. Obs'd.	Comp.	C — O.	Observer.
Dec.	11 12 30 58.8	I.	5 54 14.23	12.45	— 1.78		.56		N.	+ 26 18 1.85	19.81	+ 17.96		7.64		
	17 11 56 54.7	I.	5 43 43.61	42.17	— 1.44		.57		N.	+ 26 27 27.73	41.33	+ 13.60		7.59		
	27 11 1 7.3	I.	5 27 10.92	11.18	+ 0.26		.55									

Mean Time—Washington. 1849.			Limb observed.	Right Ascensions. Observed.	Comp	C — O.	Sidereal Times of Semi-diameter passing. Obs'd.	Comp.	C — O	Limb observed.	Declinations. Observed.	Comp.	C — O.	Semi-diameters. Obs'd.	Comp.	C — O.	Observer.
CERES.																	
		h. m. s.		h. m. s.	s.	s.	s.	s.	s.		h. m. s.	s.	s.	s.	s.	s.	
Sept.	7	6 53 37.9		18 3 23 84	33.03	+ 9.19					— 29 37 12.10	22.20	— 10.10				
METIS.																	
Sept.	10	10 41 57.5		22 2 10.32	9.32	— 1.00					— 21 58 29.46	14.35	+ 15.11				
	18	10 4 35.6		21 56 10.92	10.67	.25					22 12 38.24	20.91	17.33				
	21	9 50 54.1		54 20.55	20.23	.32					22 14 25.16	11.19	13.97				
	25	9 33 7.5		52 17.03	16.36	.67					22 13 50.81	38.47	12.34				
	27	9 24 23.9		51 25.31	24.92	.39					22 12 17.27	8.48	8.79				
	28	9 20 5.5		51 2.80	1.88	.92					22 11 22.87	5.68	+ 17.19				
Oct.	8	8 38 36.8		48 52.82	52.57	— .25					— 21 50 28.45	2.43	— 26.02				
JUPITER.																	
Mar.	24	8 52 42.0		9 2 23.08	22.53	— 0.55	1.45	1.49	+ 0.04		+ 17 56 42.18	42.88	+ 0.77	20.77	19.77	— 1.00	
	31	8 24 12.5		1 24.89	24.24	.65	1.44	1.47	.03								
April	2	8 26 10.9		1 15.06	14.39	.67	1.45	1.47	+ .02		18 0 45.56	47.61	2.05	19.34	19.33	.01	
	10	7 44 34.4		1 5.75	5.19	.56	1.49	1.43	— .06		18 0 40.37	42.59	+ 2.22	19.98	18.82	1.16	
	11	7 40 40.8		1 8.04	7.42	.62	1.51	1.43	.08		18 0 28.38	27.47	— 0.91	20.50	18.76	1.74	
	14	7 29 4.1	I.	1 19.09	18.55	.54		1.42									
	16	7 21 23.4		1	29.69			1.41			17 58 22.78	24.12	+ 1.34	19.71	18.37	1.34	
	19	7 9 57.8		1 52.25	51.87	.38	1.43	1.39	— .04		+ 17 56 31.07	32.62	+ 1.55	19.04	17.67	— 1.37	
May	1	6 25 18.9		4 24.92	24.29	.63	1.31	1.34	+ .03								
	2	6 21 41.0		4 41.91	41.39	— .52	1.21	1.34	+ .13								
SATURN.																	
Nov.	5	9 10 17.2		0 11 3.32	1.87	— 1.45	0.59	0.62	+ 0.03		— 1 38 6.53	10.36	— 3.83	9.15	8.71	— 0.44	
Dec.	5	7 5 40.4		8 19.38	17.83	1.55	.59	.59	.00								
	17	6 22 36.8		8 50.70	49.36	1.34	.56	.58	.02								
	21	6 7 29.7		9 13.84	12.51	— 1.33	.54	.58	+ .04								
NEPTUNE.																	
Sept.	5	11 20 46.1		22 21 22.36	22.50	+ 0.14					— 11 2 39.26	42.55	— 3.29				
	10	11 0 36.5		20 52.20	52.32	.12					5 37.53	36.46	+ 1.07				
	12	10 52 32.8		20 40.41	40.47	.06					6 47.72	44.44	+ 3.28				
	18	10 28 22.9		20 5.89	5.94	+ .05					10 0.14	1.85	— 1.71				
	21	10 16 18.7		19 49.47	49.32	— .15					11 31.78	36.35	4.57				
	24	10 4 14.9		19 33.16	33.27	+ .11					13 6.83	6.95	0.12				
	25	10 0 13.9		19 28.03	28.10	.07					13 31.70	36.43	4.73				
	28	9 48 11.0		19 12.64	12.89	+ .25					15 0.63	2.68	— 2.05				
Oct.	8	9 8 6.4		18 27.33	27.28	— .05					19 17.62	17.55	+ 0.07				
	24	8 4 19.0		17 34.37	34.16	.21					24 5.06	7.83	— 2.77				
	27	7 52 24.5		17 27.51	27.45	— .06					24 40.31	43.86	2.55				
Nov.	3	7 24 41.6		17 15.71	15.80	+ .09					25 42.96	43.85	0.89				
	5	7 16 47.5		17 13.46	13.59	.13					25 54.06	54.57	— 0.51				
	7	7 8 54.0		17 11.88	11.89	.01											
	12	6 49 12.5		17 9.85	9.86	+ .01											

SUN.

MEAN TIME—WASHINGTON.		Limb observed.	RIGHT ASCENSIONS.			SIDEREAL TIMES OF SEMI-DIAMETER PASSING.			Limb observed.	DECLINATIONS.			SEMI-DIAMETERS.			Observer.
1850.	Equation of time.		Observed.	Comp.	C — O	Observ'd	Comp.	C — O		Observed.	Comp.	C — O	Observ'd.	Comp.	C — O	
	m. s.		h. m. s.	s.	s.	m. s.	s.	s.		° ′ ″	″	″	′ ″	″	″	
Jan. 5	+ 5 47.31		19 5 32.46	32.48	+ 0.02	1 10.70	10.79	— 0.09								M.
12	8 42.34		19 36 4.12	4.04	— .08	10.17	10.27	.10								
19	11 7.11		20 6 4.94	4.95	+ .01	9.62	9.61	.01								
22	+11 58.05		20 18 45.74	45.70	— .04	9.37	9.30	.07								
Sept. 28	— 9 22.53		12 19 3.51	3.34	— .17	4.23	4.05	.18								
30	10 1.62		12 26	17.54	- - -	4.00	2.26	- - -		— 2 50 35.91	36.90	— 0.99	16 1.98	0.29	— 1.69	
Oct. 1	10 20.74		12 29 55.14	54.91	— .23	4.25	4.27	+ .02		— 3 13 53.32	57.33	— 4.01	16 0.58	0.56	— 0.02	
4	11 6.21		12 40 49.03	48.95	— .08	4.49	4.44	— .05								
Nov. 6	16 11.66		14 45 58.71	58.95	+ .24	7.54	7.47	.07								
9	15 59.06		14 58 1.28	1.25	— .03	7.84	7.83	— .01								
14	15 21.49		15 18 21.59	21.71	+ .12	8.32	8.43	+ .14								
26	—12 27.34		16 8 34.94	34.90	— .04	9.81	9.77	— .04								

MOON.

Mean time—Washington. 1850.			Limb observed.	Right ascensions.			Sidereal times of semi-diameter passing.			Limb observed.	Declinations.			Semi-diameters.			Observer.
				Observed.	Comp.	C — O	Observ'd.	Comp.	C — O		Observed.	Comp.	C — O	Observ'd.	Comp.	C — O	
		h. m s.		h. m. s.	s.	s.	m. s.	s.	s.		° ′ ″	″	″	′ ″	″	″	
MOON.																	
Feb.	22	9 3 13.8	I.	7 13 41.67	41.92	+ 0.25		12.74									
	23	10 3 42.6	I.	8 18 16.41	17.19	.78		12.35									
April	29	15 6 6.1	II.	17 37 44.89	45.29	.40		5.51									
Sept.	16	8 44 30.9	I.	20 27 5.97	6.30	.33		4.28									
	17	9 30 50.4	I.	21 17 29.39	29.78	.39		3.55			— 16 1 37.21	39.26	— 2.05		45.48		
Oct.	15	8 11 3.4	- -	21 47	53.12	- - -		- -			14 26 8.31	11.31	3.00		48.09		
Nov.	13	7 33 36.2	I.	23 4 39.36	39.78	.42		2.39			- - - -	- -	- - -		- -		
	14	8 17 18.4	I.	23 52 25.29	25.79	.50		2.41			4 51 58.67	63.20	4.53		3.34		
Dec.	11	6 10 59.1	I.	23 32 12.57	12.74	.17		1.95			6 56 3.04	4.26	1.22		53.30		
	13	7 37 52.1	I.	1 7 12.18	13.18	+ 1.00		3.00			— 1 54 36.00	38.27	— 2.27		13.82		
MERCURY.																	
Nov.	13	23 13 36.4	I.	14 47 14.77	14.53	— 0.24	- -	0.16	- - -	Cen.	— 15 18 48.12	42.09	+ 6.03				
VENUS.																	
May	13	1 12 6.2	I.	4 36 41.13	41.64	+ 0.51		0.37			+ 22 38 31.91	32.36	+ 0.45	6.02	5.14	— 0.88	
Sept.	23	2 44 5.1	I.	14 53 17.01	16.91	— .10		.75			— 19 19 60.25	52.79	7.46	11.60	10.70	0.90	
Oct.	1	2 45 53.8	I.	15 26 38.49	37.93	.56		.82			22 7 46.56	41.46	5.10	13.25	11.64	1.61	
	3	2 46 19.7	I.	15 34 57.54	56.82	.72		.85			22 45						
	8	2 47 16.3	--	15 55	36.42	- - -		- -			24 9 65.14	58.46	6.68	13.11	12.60	0.51	
	15	2 47 59.9	I.	16 23 56.64	56.19	.45		1.01			25 47 7.43	0.19	7.24	14.53	13.73	0.80	
	16	2 48 1.6	I.	16 27 54.80	53.71	1.09		1.03			25 58 48.96	42.52	6.44	14.45	13.95	0.50	
	29	2 44 45.0	I.	17 15	52.52	- - -		- -			27 40 48.57	42.69	5.88	17.54	16.64	— 0.90	
	31	2 43 27.7	I.	17 22 28.51	27.71	0.80		1.29			27 48 23.49	14.13	9.36	16.72	17.14	+ 0.42	
Nov.	2	2 41 53.5	I.	17 28 47.13	45.81	1.32		1.31			27 53 45.25	39.46	5.79	17.17	17.67	0.50	
	4	2 39 59.3	I.	17 34 45.77	44.92	0.85		1.34			27 57 5.93	0.88	+ 5.05	18.16	18.22	0.06	
	6	2 37 45.1	I.	17 40 24.33	23.04	1.29		1.42			27 58 20.43	20.81	— 0.38	18.00	18.80	0.80	
	9	2 33 39.7	I.	17 48 7.86	6.32	1.54		1.48			27 56 41.06	38.19	+ 2.87	17.90	19.73	1.83	
	13	2 26 38.9	I.	17 56 52.12	49.95	2.17		1.58			27 47 45.70	38.67	7.03	20.75	21.07	+ 0.32	
	14	2 24 34.3	I.	17 58 43.79	42.10	1.69		1.62			27 44 15.83	8.85	6.98	21.50	21.42	— 0.08	
	26	1 47 57.6	I.	18 9 19.65	17.51	— 2.14		1.94			26 27 33.99	23.20	10.79	24.82	26.05	+ 1.23	
Dec.	11	0 28 12.6	--	17 48	27.85	- - -		- -			— 23 15 8.45	4.89	+ 3.56	32.76	30.84	— 1.92	
MARS.																	
Jan.	14	9 31 34.2	--	5 8 21.32	19.60	— 1.72	0.39	0.48	+ 0.09		+ 26 15	43.53	- - -		6.36		
	19	9 10 1.9	I.	5 6 28.31	27.12	1.19	- -	.45	- - -	N.	26 10 40.49	51.51	+11.02		6.07		
	29	8 31 18.2	--	5 7	2.76	- - -	.43	.41	— .02	N.	26 3 56.82	66.22	9.40		5.49		
Feb.	16	7 33 51.4	--	5 20	24.50	- - -	- -	.34	- - -	N.	26 1 18.70	22.53	3.83		4.59		
	25	7 9 46.6	--	5 31 45.71	44.75	0.76	.29	.31	+ .02	N.	26 1 20.03	28.95	+ 8.92		4.22		
March	11	6 36 44.0	--	5 53 49.21	48.74	— 0.47	.33	.27	— .06	N.	+ 25 57	0.08					
VESTA.																	
Feb.	23	8 38 50.5		6 53 11.16	12.69	+ 1.53					+ 25 58 66.57	50.57	— 16.00				
March	8	7 48 57.2		6 54 24.84	26.54	+ 1.71					+ 26 8 19.23	9.99	— 9.24				

FLORA.

MEAN TIME—WASHINGTON. 1850.		Limb observed.	RIGHT ASCENSIONS. Observed.	Comp.	C — O	SIDEREAL TIMES OF SEMI-DIAMETER PASSING. Observed.	Comp.	C — O	Limb observed.	DECLINATIONS. Observed.	Comp.	C — O	SEMI-DIAMETERS. Observ'd.	Comp.	C — O	Observer.
	h. m. s.		h. m. s.	s.	s.	m. s.	s.	s.		° ′ ″	″	″	′ ″	″	″	
Oct. 1	11 33 39.9		0 15 51.18	54.31	+ 3.13					— 11 13 74.03	58.32	+ 15.71				
9	10 55.38.9		0 9	19.54	- - -					11 52 34.70	20.31	+ 14.49				
Nov. 4	9 2 50.7		23 58 40.09	- -	- - -					11 34 16.52						
13	8 29 1.1		0 0 13.87	- -	- - -					— 10 40.47.80						
JUPITER.																
March 8	12 12 31.7		11 18 42.61	41.73	— 0.88				N.	+ 6 4 41.12	46.03	+ 4.91		20.92		
April 17	9 19 18.7		11 2 43.30	42.43	.87					7 42 5.33	17.78	+ 12.45	20.40	19.81	— 0.59	
May 6	8 1 49.6		10 59 56.00	55.39	— 0.61					+ 7 55	42.72					
SATURN.																
Nov. 14	9 24 22.1		0 59 42.56	41.30	— 1.26				N.	+ 3 25 33.86	40.82	+ 6.96		8.80		
Dec. 13	7 27 51.9		0 56 11.13	9.91	— 1.22				N.	+ 3 11 0.38	4.18	+ 3.80		8.40		
URANUS.																
Dec. 13	8 10 6.2		1 39	32.58					Cen.	+ 9 45 15.10	59.20	+ 44.10				
NEPTUNE.																
Sept. 21	10 25 59.5		22 28 34.20	34.39	+ 0.19					— 10 25 25.99	24.86	+ 1.13				
23	10 17 56.7		28 23.20	28.38	.18					26 29.63	28.67	0.96				
Oct. 1	9 45 48.1		27 41.70	41.84	.14					30 28.71	27.95	+ 0.76				
3	9 37 46.8		27 32.17	32.18	.01					31 22.11	23.31	— 1.20				
9	9 13 44.1		27 4.83	5.11	.28					33 60.78	57.41	+ 3.37				
15	8 49 45.2		26	41.31	- - -					36 10.66	11.55	— 0.89				
28	7 58 0.1		26 2.23	2.51	.28					39 47.40	45.54	+ 1.86				
29	7 54 1.8		26 0.50	0.31	— .19					39 55.35	57.36	— 2.01				
31	7 46 5.6		25 56.16	56.26	+ .10					40 20.40	18.88	+ 1.52				
Nov. 6	7 22 21.1		25 47.01	47.03	+ .02					40 7.07	6.20	0.87				
9	7 10 30.5		25	44.10	- - -					+ 41 20.06	19.97	+ 0.09				

RESULTS OF OBSERVATIONS

WITH

THE EQUATORIAL,

IN THE YEARS

1849 AND 1850.

NATIONAL OBSERVATORY.

APPARENT PLACES OF COMET III, 1849, (SCHWEITZER'S.)

MEAN TIME—WASHINGTON.			COMPARISON STAR.	α	δ	No. of comp.
1849.		h. m. s.		h. m. s.	° ′ ″	
April	19	10 35 0.1	Bessel's Zones, 412, 151	13 55 37.57	+ 23 55 54.42	10
	20	9 18 27.2	(a)	13 42 14.07	+ 22 44 58.90	6
	29	10 58 17.2	Weisse X, 859	10 49 52.65	— 0 49 20.01	5
	29	10 58 17.2	21026, Lalande	10 49 52.63	— 0 49 19.49	5

MEAN PLACES, 1850.0, OF STARS OBSERVED WITH COMET III, 1849.

STARS.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
Bessel's Zones, 412, 151	9	13 54 30.63	Washington Mural	+ 23 55 56.47	Washington Mural, 1 obs.
(a)	9	13 41 13.61	Washington Mural, 1 obs.	+ 22 45 57.24	Washington Mural, 2 obs.
Weisse X, 859	8	10 46 54.69	Washington Mural, 2 obs.	— 0 43 15.33	Washington Mural, 2 obs.
21026, Lalande	8	10 48 26.00	Washington Mural, 2 obs.	— 0 49 8.86	Washington Mural, 2 obs.

APPARENT PLACES OF METIS.

MEAN TIME—WASHINGTON.			COMPARISON STAR.	α	δ	No. of comp.
1849.		h. m. s.		h. m. s.	° ′ ″	
September	9	9 35 47.1	7724, B. A. Catalogue	22 3 2.14	— 21 55 41.97	16
	10	8 56 38.5	7724, B. A. Catalogue	22 2 13.28	21 58 20.80	13
	11	10 50 54.1	7724, B. A. Catalogue	22 1 19.94	22 1 4.58	7
	12	10 23 32.6	7724, B. A. Catalogue	22 0 32.45	22 3 20.06	4
	13	9 59 50.4	43106, Lalande	21 59 45.81	22 5 22.37	4
			7724, B. A. Catalogue	21 59 46.60	22 5 24.85	4
	14	8 18 4.4	43106, Lalande	21 59 3.11	22 7 8.51	7
			7724, B. A. Catalogue	21 59 3.68	22 7 11.58	7
	15	10 9 15.8	43106, Lalande	21 58 15.29	22 9 2.58	4
	16	9 47 52.8	43106, Lalande	21 57 33.32	22 10 23.52	3
	18	10 21 6.9	43106, Lalande	21 56 10.26	22 12 40.13	5
October	13	8 12 47.1	42700, Lalande	21 48 56.85	21 33 29.18	5
		8 20 48.6	7649, B. A. Catalogue	21 48 57.77	21 33 27.96	4
	14	8 2 21.0	(5)	21 49 2.53	21 29 43.94	4
			(6)	21 49 4.01	21 29 40.68	4
	15	8 27 6.8	(5)	21 49 11.46	21 25 32.03	4
			(6)	21 49 12.60	21 25 31.89	4
	24	8 52 47.1	(7)	21 51 48.57	20 42 56.12	4
	25	7 13 14.3	(7)	21 52 11.80	20 37 7.79	7
		7 24 51.8	(8)	21 52 12.10	20 37 0.94	5
	27	8 30 8.9	42813, Lalande	21 53 9.84	20 35 28.14	5
		8 23 49.4	(8)	21 53 9.78	20 25 21.11	4
November	2	8 12 6.6	(9)	21 56 37.05	19 48 21.52	16
		8 55 5.8	43040, Lalande	21 56 36.92	19 48 8.84	2
	3	8 23 27.2	43040, Lalande	21 57 15.40	19 41 50.82	5
	4	7 3 50.1	43040, Lalande	21 57 53.80	19 35 22.19	13
	5	8 27 31.9	43040, Lalande	21 58 38.58	19 28 6.91	7
	6	7 37 51.9	43040, Lalande	21 59 20.49	19 21 26.12	5
			7711, B. A. Catalogue	21 59 21.40	19 21 27.52	5
	7	7 46 5.3	7711, B. A. Catalogue	22 0 6.99	— 19 14 7.03	8

APPARENT PLACES OF METIS—Continued.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of comp.
1849.	h. m. s.		h. m. s.	° ′ ″	
November 10	7 11 58.7	7711, B A. Catalogue	22 2 28.46	— 18 52 39.62	5
12	8 52 49.5	43288, Lalande	22 4 14.36	18 37 0.02	8
13	7 36 56.5	43288, Lalande	22 5 4.81	18 29 42.31	6
27	7 35 52.2	(10)	22 19 27.53	16 31 39.56	5
December 5	7 1 56.9	7836, B. A. Catalogue	22 28 57.18	16 16 33.02	5
	7 1 18.2	(11)	22 28 57.65	15 16 34.82	4
6	6 38 44.7	Weisse XXII, 640	22 30 11.70	15 6 54.88	5
	6 53 25.2	Weisse XXII, 644	22 30 12.48	15 6 48.81	16
11	5 44 18.2	Weisse XXII, 815	22 36 41.53	14 16 42.32	6
	5 43 57.1	7954, B. A. Catalogue	22 36 41.84	14 16 49.29	7
12	6 26 14.2	7954, B. A. Catalogue	22 38 0.93	14 6 40.42	6
18	6 2 19.6	7976, B. A. Catalogue	22 46 14.41	13 3 49.66	9
24	7 2 6.8	Weisse XXII, 1149	22 54 54.94	11 57 51.54	6
		Weisse XXII, 1156	22 54 55.19	11 57 48.62	6
27	6 16 3.8	Weisse XXII, 1132	22 59 17.84	11 24 32.35	8
31	6 31 54.9	Weisse XXIII, 85	23 5 20.71	— 10 38 40.44	7

MEAN PLACES FOR 1850.0 OF STARS COMPARED WITH METIS.

STARS.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
7724, B. A. Catalogue	7	22 2 42.36	Argelander's Zone, 248, 4	— 21 58 1.17	Washington Mural, 4 obs.
43106, Lalande	8	21 59 29.99	Wash. Mer. Circle, 1 obs.	22 19 19.39	Washington Mural, 3 obs.
42700, Lalande	7	21 47 15.48	Wash. Mer. Circle, 1 obs.	21 50 46.61	Washington Mural, 3 obs.
7649, B. A. Catalogue	6.5	21 50 21.58	Arg. Zones, 237, 100, & 246, 1	21 53 44.92	Washington Mural, 5 obs.
(5)	9	21 48 12.16	Washington Mural, 2 obs.	21 28 27.13	Washington Mural, 3 obs.
(6)	8.5	21 49 56.71	Wash. Mer. Circle, 1 obs.	21 26 55.59	Washington Mural, 3 obs.
(7)	9	21 50 58.90	Washington Mural, 1 obs.	20 43 6.94	Washington Mural, 3 obs.
(8)	9	21 52 45.70	Washington Mural, 1 obs.	20 30 24.56	Washington Mural, 1 obs.
42813, Lalande	9	21 50 31.42	Lalande Catalogue	20 19 14.88	Washington Mural, 3 obs.
(9)		21 56 37.07	Washington Equatorial	19 48 0.46	Washington Mural, 3 obs.
43040, Lalande	7.8	21 57 32.71	Rumker Catalogue	19 23 42.08	Washington Mural, 6 obs.
43288, Lalande	9.5	22 4 21.35	Rumker Catalogue	18 45 55.24	Washington Mural, 4 obs.
(10)	9	22 20 37.00	Washington Equatorial	16 25 47.82	Washington Mural, 3 obs.
7836, B. A. Catalogue	6	22 22 14.64	Rumker Catalogue	15 21 2.46	Washington Mural, 6 obs.
(11)	9	22 22 55.18	Washington Equatorial	15 19 59.77	Washington Mural, 3 obs.
Weisse XXII, 640	9	22 30 29.75	Weisse Catalogue	14 50 8.27	Washington Mural, 3 obs.
Weisse XXII, 644	8	22 30 34.24	Weisse Catalogue	14 50 42.67	Washington Mural, 6 obs.
Weisse XXII, 815	9	22 38 15.76	Weisse Catalogue	14 18 48.97	Washington Mural, 3 obs.
7954, B. A. Catalogue	5	22 41 38.67	Rumker Catalogue	14 22 58.48	Washington Mural, 5 obs.
7976, B. A. Catalogue	7	22 46 12.52	B. A. Catalogue	12 59 7.68	Washington Mural, 3 obs.
Weisse XXII, 1149	8.2	22 54 31.62	Struve Cat. Gen.	12 7 0.22	Washington Mural, 2 obs.
Weisse XXII, 1156	8	22 54 40.99	Weisse Catalogue	12 4 13.71	Washington Mural, 3 obs.
Weisse XXII, 1132	8	22 58 3.31	Weisse Catalogue	11 14 45.43	Washington Mural, 3 obs.
Weisse XXIII, 85	9	23 5 40.40	Weisse Catalogue	— 10 44 44.63	Washington Mural, 2 obs.

APPARENT PLACES OF ASTRÆA.

MEAN TIME—WASHINGTON.			COMPARISON STAR.	α	δ	No. of Comp.
1849.		h. m. s.		h. m. s.	° ′ ″	
October	15	9 45 36.4	Weisse III, 781	3 36 34.17	+ 10 57 13.07	4
November	2	11 14 52.7	(12)	3 23 44.52	9 33 8.03	4
	4	10 2 45.4	(12)	3 21 59.41	9 24 1.26	8
	5	10 34 7.8	(12)	3 21 3.33	9 19 23.66	4
	6	10 7 13.8	(12)	3 20 9.15	9 14 54.70	7
		10 37 36.8	1068, B. A. Catalogue	3 20 7.84	9 14 53.80	6
	7	9 14 43.2	1068, B. A. Catalogue	3 19 15.19	9 10 35.26	10
	10	9 35 44.7	1068, B. A. Catalogue	3 16 23.28	8 57 31.13	4
	12	11 54 21.5	(13)	3 14 23.78	8 48 46.63	3
	13	9 29 15.5	(13)	3 13 31.07	8 45 6.66	5
		9 37 19.4	1057, B. A. Catalogue	3 13 30.88	8 45 5.39	5
	24	10 4 46.1	975, B. A. Catalogue	3 3 8.42	8 7 59.50	5
			Weisse III, 35	3 3 8.75	8 7 59.39	4
		10 14 16.4	Weisse III, 62	3 3 8.77	8 7 59.07	3
	26	10 29 12.5	975, B. A. Catalogue	3 1 22.49	8 2 57.73	8
	27	8 46 45.8	975, B. A. Catalogue	3 0 35.20	8 0 49.88	10
December	6	9 24 53.4	Weisse III, 967	2 53 44.04	7 47 38.56	11
	12	7 59 43.2	905, B. A. Catalogue	2 50 13.83	7 46 37.42	3
			Weisse III, 967	2 50 14.09	7 46 35.67	3
	17	7 47 39.0	905, B. A. Catalogue	2 48 4.68	7 50 42.73	11
	24	7 49 17.5	929, B. A. Catalogue	2 46 16.77	8 3 41.22	3
	27	11 28 36.7	929, B. A. Catalogue	2 45 56.84	8 12 13.08	4
	31	7 26 49.7	929, B. A. Catalogue	2 45 59.99	8 19 38.87	3

MEAN PLACES, 1850.0, OF STARS COMPARED WITH ASTRÆA.

STARS.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
781, B. A. Catalogue	8.9	3 40 36.99	Weisse Catalogue	+ 11 14 38.91	Washington Mural, 2 obs.
(12)	9	3 21 18.73	Weisse Catalogue	9 26 9.52	Washington Mural, 2 obs.
1068, B. A. Catalogue	4	3 19 2.65	Rumker's Catalogue	9 12 20.79	Washington Mural, 2 obs.
(13)	9	3 13 29.17	Washington Equatorial	8 49 6.72	Washington Mural, 2 obs.
1057, B. A. Catalogue	5	3 16 44.90	Santini Catalogue	8 29 49.97	Washington Mural, 3 obs.
975, B. A. Catalogue	7	3 0 37.15	B. A. Catalogue	7 53 21.64	Washington Mural, 2 obs.
Weisse III, 35	9	3 3 2.66	Weisse Catalogue	8 9 6.47	Washington Mural, 2 obs.
Weisse III, 62	9	3 4 33.00	Weisse Catalogue	8 1 33.89	Washington Mural, 2 obs.
Weisse II, 967	8	2 54 47.48	Weisse Catalogue	7 52 46.52	Washington Mural, 2 obs.
905, B. A. Catalogue	6.7	2 48 12.73	Santini Catalogue	7 46 30.35	Washington Mural, 2 obs.
929, B. A. Catalogue	4	2 51 40.83	Santini Catalogue	+ 8 18 22 67	Washington Mural, 2 obs.

APPARENT PLACES OF CERES.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of Comp.
1849.	h. m. s.		h. m. s.	° ′ ″	
September 18	8 12 35.17	6209, B. A. Catalogue	18 10 22.47	— 29 32 15.42	3
19	8 14 30.0	6209, B. A. Catalogue	18 11 7.55	29 37 4.94	3
21	7 28 8.2	6209, B. A. Catalogue	18 12 40.87	29 36 40.54	5

MEAN PLACE 6209, B. A. C., 1850.0.

STARS.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
6209, B. A. Catalogue	(3.4)	18 11 23.42	- - - - - - - - -	— 29 53 6.22	Rumker's Catalogue

APPARENT PLACE OF VESTA.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of Comp.
1849.	h. m. s.		h. m. s.	° ′ ″	
December 31	11 50 8.5	2544, B. A. Catalogue	7 36 52.21	+ 22 29 16.51	6

MEAN PLACE FOR 1850.0 OF STAR OF COMPARISON.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
2544, B. A. Catalogue	7	7 34 25.70	- - - - - - - - -	+ 22 44 57.91	B. A. Catalogue

APPARENT PLACES OF MARS.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of Comp.
1849.	h. m. s.		h. m. s.	° ′ ″	
November 2	14 20 48.9	Bessel's Zones, 348, 84	6 25 53.91		
	14 30 56.6	Bessel's Zones, 348, 84		+ 24 30 41.72	
4	13 17 55.7	Bessel's Zones, 348, 95	6 26 26.62	24 25 36.83	
	14 26 44.3	Bessel's Zones, 348, 95	6 26 27.35	24 25 44.24	
6	13 13 7.8	Bessel's Zones, 348, 95	6 25 47.96	24 30 47.15	
12	13 11 50.2	12557, Lalande	6 25 22.91	24 48 15.48	
	14 39 30.9	12557, Lalande	6 25 22.04	24 48 26.66	
13	12 23 58.2	12557, Lalande	6 26 6.28	24 51 14.15	
24	12 12 43.1	Bessel's Zones, 523, 106	6 18 41.14		
	12 8 4.7	Bessel's Zones, 523, 106		25 27 57.34	
	12 13 6.4	Bessel's Zones, 523, 106		25 28 2.96	
26	12 15 0.8	12337, Lalande	6 16 30.92		
	12 13 46.6	12337, Lalande		25 34 51.32	
	14 21 2.9	12337, Lalande		25 35 10.77	
December 6	12 17 40.4	11684, Lalande	6 2 37.83	26 6 1.00	
	12 20 41.9	11684, Lalande	6 2 37.43	26 6 8.18	
	12 8 0.4	11714, Lalande	6 2 38.75	26 5 59.05	
	12 10 14.8	11714, Lalande	6 2 38.38	26 6 5.51	
11	10 26 55.4	1673, Rumker	5 54 23.10	26 17 48.15	
	10 27 43.4	1673, Rumker	5 54 23.94	26 17 56.66	
12	11 2 19.8	1680, Rumker	5 52 35.82	26 19 45.35	
	11 8 1.5	1680, Rumker	5 52 35.98	26 19 53.01	
17	10 34 29.8	Bessel's Zones, 405, 56	5 43 49.99	26 27 22.37	
	10 47 34.5	Bessel's Zones, 405, 56	5 43 58.98	26 27 17.53	
27	9 32 35.4	Bessel's Zones, 405, 28	5 27 16.33	26 30 58.65	
	9 32 17.1	Bessel's Zones, 405, 28	5 27 16.38	26 31 2.63	
31	9 27 39.6	Bessel's Zones, 405, 15	5 21 35.02	26 28 59.32	
	9 30 37.1	Bessel's Zones, 405, 15	5 21 34.73	+ 26 29 8.80	

MEAN PLACES OF STARS COMPARED WITH MARS.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
Bessel's Zones, 348, 84		6 18 48.31	Washington Mural, 1 obs.	+ 24 20 31.09	Washington Mural, 3 obs.
Bessel's Zones, 348, 95		6 27 56.20	Washington Mural, 1 obs.	24 31 3.86	Washington Mural, 1 obs.
12557, Lalande		6 25 50.59	Washington Mural, 1 obs.	24 44 45.64	Washington Mural, 1 obs.
Bessel's Zones, 523, 106		6 18 2.98	Washington Mural, 1 obs.	25 27 32.69	Washington Mural, 1 obs.
12237, Lalande		6 16 50.58	Washington Mural, 1 obs.	25 35 23.01	Washington Mural, 1 obs.
11714, Lalande		6 2 26.09	Washington Mural, 1 obs.	26 0 42.36	Washington Mural, 1 obs.
11684, Lalande		6 1 33.98	Washington Mural, 1 obs.	26 2 16.58	Washington Mural, 1 obs.
1673, Rumker		5 54 7.70	Chilé Expedition	26 16 31.14	Washington Mural, 10 obs.
1680, Rumker		5 54 31.46	Chilé Expedition	26 21 1.58	Washington Mural, 11 obs.
Bessel's Zones, 405, 56		5 46 18.69	Chilé Expedition	26 26 48.67	Washington Mural, 10 obs.
Bessel's Zones, 405, 28		5 29 36.63	Chilé Expedition	26 31 31.45	Washington Mural, 12 obs.
Bessel's Zones, 405, 15		5 21 43.14	Chilé Expedition	+ 26 27 47.06	Washington Mural, 11 obs.

APPARENT PLACES OF METIS.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of comp.
1850.	h. m. s.		h. m. s.	° ′ ″	
January 5	7 15 31.0	8109, B. A. Catalogue	23 13 5.34	— 9 39 50.62	3
14	6 58 42.6	Weisse XXIII, 592	23 29 39.11	— 7 51 19.32	7

MEAN PLACES, 1850.0, OF STARS COMPARED WITH METIS.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
8109, B. A. Catalogue	5	23 10 6.27	M. 3, 57†	— 10 0 1.74	Y. 2, 54.†
Weisse XXIII, 592	9	23 28 33.35	Rumker's Catalogue	— 7 56 44.11	Y. 2, 57.

APPARENT PLACES OF ASTRÆ.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of comp.
1850.	h. m. s.		h. m. s.	° ′ ″	
January 14	9 49 22.5	Weisse II, 880, 893	2 49 45.26	+ 9 27 34.66	3
February 5	8 6 32.0	Weisse III, 114	2 49 44.77	9 27 36.50	3
11	9 9 36.5	Weisse III, 172	3 6 7.62	11 44 49.09	10
14	7 9 17.9	Weisse III, 205	3 12 31.87	12 27 44.69	8
16	9 30 52.5	Weisse III, 306	3 15 53.40	12 48 45.24	6
17	8 58 18.7	Weisse III, 306	3 18 25.43	13 4 18.45	10
19	8 22 14.0	Weisse III, 447	3 19 36.58	13 11 9.65	6
22	8 25 2.5	Weisse III, 474	3 22 6.77	13 25 46.43	8
23	7 43 48.0	Weisse III, 474	3 25 58.85	13 47 40.48	12
25	7 44 14.1	(° 1)	3 27 16.27	13 54 47.15	6
26	9 23 51.1	940, Rumker	3 29 58.68	14 9 31.00	10
March 4	9 18 23.2	Weisse III, 774	3 31 28.56	14 17 22.89	6
5	8 51 31.9	Weisse III, 774	3 40 5.53	15 1 7.90	4
10	8 19 56.9	Weisse III, 774	3 41 29.58	15 7 56.36	3
11	7 58 10.5	(° 2)			

MEAN PLACES, 1850.0, OF STARS COMPARED WITH ASTRÆ.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
Weisse II, 880	8.5	2 50 18.80	Rumker Catalogue	+ 9 35 58.41	Y. 2, 54.
Weisse II, 893	8.5	2 51 12.21	Rumker Catalogue	9 36 27.78	Y. 2, 54.
Weisse III, 114	9	3 6 43.33	Weisse Catalogue	11 52 15.43	Y. 2, 54, 55.
Weisse III, 172	8	3 10 0.68	Rumker Catalogue	12 16 17.76	Y. 3, 55.
Weisse III, 205	8	3 11 35.88	Rumker Catalogue	12 49 44.60	Y. 3, 55, 56.
Weisse III, 306	9	3 17 24.46	Weisse Catalogue	13 5 20.08	Y. 2, 55, 56.
Weisse III, 447	8	3 25 1.97	Rumker Catalogue	13 16 22.06	Y. 2, 55.
Weisse III, 474	9	3 26 13.26	Rumker Catalogue	13 40 4.82	Y. 2, 55.
(° 1)	9	3 28 6.79	Washington Equatorial	13 57 17.85	Y. 2, 56.
940, Rumker	9	3 33 48.83	Rumker Catalogue	14 18 25.54	Y. 2, M. 2, 55, 57.
Weisse III, 774	9	3 40 26.23	Weisse Catalogue	15 7 15.24	Y. 2, 55.
(° 2)	9	3 47	Weisse Catalogue	+ 15	

† In the columns of authority, Y. indicates determinations from observations by Professor Yarnall, with the Mural of the Observatory. The first numeral indicates the number of observations, and then follows the years in which they were made. In like manner, M. and L. indicate, respectively, similar observations with the Transit, made by Professors Major and Lawrence.

APPARENT PLACES OF MARS.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of comp.
1850.	° ′ ″		h. m. s.	° ′ ″	
January 5	9 0 22.2	Bessel's Zones, 523, 15	5 15 35.34	+ 26 24 57.23	12
	9 23 28.5	Bessel's Zone, 523	5 15 34.04	26 24 50.67	10
9	8 36 50.0	Bessel's Zone, 523	5 11 48.65	26 20 55.47	7
	8 43 25.7	Bessel's Zone, 523	5 11 47.31	26 20 53.33	7
12	8 11 28.7	Bessel's Zones, 396, 127	5 9 33.75	26 17 37.51	7
	8 13 3.5	Bessel's Zone, 396	5 9 33.82	26 17 38.86	6
14	8 49 17.2	Bessel's Zone, 396	5 8 21.70	26 15 29.85	2
	8 57 5.7	Bessel's Zone, 396	5 8 20.96	26 15 32.13	2
22	8 4 45.3	Bessel's Zone, 405, 6	5 6 3.90	26 8 10.64	11
	8 9 59.9	Bessel's Zone, 405	5 6 4.15	26 8 9.96	10
29	6 38 26.6	Bessel's Zone, 405	5 7 2.28	26 3 53.90	3
	6 44 26.4	Bessel's Zone, 405	5 7 1.68	+ 26 3 56.41	3

MEAN PLACES, 1850.0, OF STARS COMPARED WITH MARS.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
Bessel's Zones, 523, 15	8.5	5 17 47.92	L.	+ 26 26 53.86	Y. 10, 55.
Bessel's Zones, 396, 127	8	5 3 4.64	L.	26 16 19.81	Y. 12, 55.
Bessel's Zones, 405, 6	9	5 10 29.37	L.	+ 26 5 49.14	Y. 11, 55.

APPARENT PLACES OF IRIS.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of comp.
1850.	h. m. s.		h. m. s.	° ′ ″	
March 31	13 18 38.1	Argelander's Zones, 210, 43	16 4 59.30	— 24 41 2.04	12
April 13	13 4 6.7	5345, B. A. Catalogue	16 0 21.73	24 27 38.99	11
14	12 18 8.8	5345, B. A. Catalogue	15 59 50.80	24 26 56.78	10
15	12 5 25.0	5345, B. A. Catalogue	15 59 17.16	24 24 11.15	8
29	12 36 54.4	5254, B. A. Catalogue	15 49 1.18	23 47 17.47	10
May 1	11 39 42.0	5254, B. A. Catalogue	15 47 17.10	23 40 31.62	16
9	12 0 15.6	5220, B. A. Catalogue	15 39 40.87	23 8 38.98	17
12	10 52 55.9	Argelander's Zones, 387, 6	15 36 43.95	22 55 30.51	18
18	11 30 37.7	Argelander's Zones, 209, 61	15 30 38.85	22 26 48.95	10
		Argelander's Zones, 209, 62	15 30 38.96	22 26 49.21	10
		Argelander's Zones, 209, 63	15 30 38.58	22 26 48.71	10
20	11 14 15.4	Argelander's Zones, 209, 62	15 28 39.17	22 16 53.67	11
21	11 41 52.5	(° 5)	15 27 37.55	22 11 44.57	10
23	12 2 12.5	(° 6)	15 25 38.63	22 1 27.53	6
26	11 19 39.7	Argelander's Zones, 209, 54	15 22 46.32	21 46 8.09	23
27	11 20 39.8	Argelander's Zones, 209, 54	15 21 48.70	21 40 56.05	14
June 3	12 1 33.6	Argelander's Zones, 209, 48	15 15 30.10	21 4 33.64	10
4	11 45 23.5	Argelander's Zones, 209, 48	15 14 40.63	20 59 32.04	6
11	10 44 27.7	Argelander's Zones, 208, 52	15 9 23.05	20 25 19.52	11
12	11 29 40.9	Argelander's Zones, 208, 52	15 8 41.08	20 20 27.10	11
13	11 26 16.8	Argelander's Zones, 208, 52	15 8 1.92	20 15 52.91	6
24	11 44 37.2	4995, B. A. Catalogue	15 2 23.78	19 30 36.24	7
25	10 13 3.9	4995, B. A. Catalogue	15 2 3.32	19 27 18.74	6
August 12	9 2 39.1	Argelander's Zones, 303, 47	15 12 51.21	18 45 59.20	6
25	8 57 5.8	5109, B. A. Catalogue	15 23 48.55	19 9 41.46	3
26	8 50 13.0	5109, B. A. Catalogue	15 24 45.31	19 11 58.44	4
27	9 5 14.9	5109, B. A. Catalogue	15 25 44.36	19 14 13.42	4
28	8 32 41.8	5109, B. A. Catalogue	15 26 41.82	— 19 16 28.23	4

MEAN PLACES FOR 1850.0, OF STARS COMPARED WITH IRIS.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
Argelander's Zones, 210, 43	8.5	16 6 43.47	Argelander's Zones	— 24 44 7.10	Y. 2, 57.
5343, B. A. Catalogue	7	15 58 52.26	Argelander's Zones	24 3 15.17	Y. 3, M. 2, 56, 57.
5254, B. A. Catalogue	6.5	15 45 0.87	Argelander's Zones	24 31 35.41	Y. 4, M. 1, 57.
5220, B. A. Catalogue	7	15 39 33.66	Argelander's Zones	23 21 57.35	Y. 3, 57.
Argelander's Zones, 387, 6	8.5	15 36 37.74	Argelander's Zones	23 1 52.81	Y. 1, 57.
Argelander's Zones, 209, 61	6	15 28 59.52	Argelander's Zones	22 38 23.30	Y. 1, M. 1, 57.
Argelander's Zones, 209, 62	7.5	15 29 56.03	Argelander's Zones	22 33 11.01	Y. 1, 57.
Argelander's Zones, 209, 63	7	15 30 32.27	Argelander's Zones	22 39 17.94	Y. 3, M. 1, 57.
(°5)	9	15 28 24.00	Washington Equatorial	22 24 27.41	Y. 2, 57.
(°6)	9.5	15 28 05.00	Washington Equatorial	22 6 4.82	Y. 2, 57.
Argelander's Zones, 209, 54	7.5	15 23 26.65	Argelander's Zones	21 27 4.54	Y. 3, 57.
Argelander's Zones, 209, 48	7.5	15 17 25.10	Argelander's Zones	20 50 55.00	Y. 4, M. 2, 57.
Argelander's Zones, 208, 52	7.5	15 10 5.32	Argelander's Zones	20 33 4.97	Y. 3, M. 1, 57.
4995, B. A. Catalogue	5.5	15 3 40.86	B. A. Catalogue	19 13 12.66	Y. 3, M. 1, 57.
Argelander's Zones, 303, 47	8	15 10 54.62	Argelander's Zones	18 37 4.01	Y. 3, 57.
5109, B. A. Catalogue	6.5	15 24 0.07	B. A. Catalogue	— 19 9 18.97	Y. 3, 57.

MEAN PLACES, 1850.0, OF STARS COMPARED WITH HYGEA.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
(°7)	9.5	19 45 41.87	Washington Equatorial . .	— 22 7 38.16	Y. 2, 55, 56.
37507, Lalande	8.9	19 37 36.95	Argelander's Zones . . .	21 52 56.52	Y. 3, M. 2, 55, 56, 57, Arg. Z.
37221, Lalande	8	19 30 59.75	Lalande, Catalogue . . .	22 24 0.58	Y. 4, 54—57.
6507, B. A. Catalogue . .	4	18 55 41.41	Rumker, Catalogue . . .	21 57 23.02	Y. 3, M. 2, 55, 57, et Rumker.
(°8)	9.5	18 52 9.22	Washington Equatorial . .	22 2 52.08	Y. 2, 55, 56.
Argelander's Zones, 224, 110	8.5	18 50 36.69	Argelander's Zones . . .	22 1 38.16	Y. 6, 55, 56.
Argelander's Zones, 224, 121	9	18 58 4.44	Argelander's Zones . . .	21 39 1.58	Y. 3, 55, et Arg.
6548, B. A. Catalogue . .	4	19 0 50.52	Argelander's Zones . . .	21 15 24.13	Y. 3, M. 2. 54, 56. et Arg.
Madrass, 1351	8.5	19 8 20.18	Argelander's Zones . . .	21 19 56.53	Y. 3, M. 2, 55, 57, et Arg.
1719, G. 12, Y.	8	19 13 47.50	G. 12, Y. Catalogue . .	20 55 5.66	Y. 3, 55, 57.
36878, Lalande	9	19 23 15.71	Argelander's Zones . . .	20 42 43.34	Y. 3, 56, et Arg. Z.
Madrass, 1417, (not used) .	8	19 31 19.64	Argelander's Zones . . .	20 53 10.99	Y. 3, 56, et Arg. Z.
Argelander's Zones, 310, 173	9	19 29 42.12	Argelander's Zones . . .	20 38 23.58	Y. 2, 55, 56, et Arg. Z.
6760, B. A. Catalogue . .	5	19 37 36.50	Argelander's Zones . . .	20 7 0.71	Y. 3, M. 3, 54, 57, et Arg. Z.
37873, Lalande	8	19 46 39.61	Argelander's Zones . . .	19 40 53.16	Y. 2, M. 2, 55, 56, Arg. reject.
38164, Lalande, (not used) .	8	19 53 18.55	Argelander's Zones . . .	19 30 32.33	Argelander's Zones.
38290, Lalande	8.5	19 56 21.21	Argelander's Zones . . .	19 11 28.24	Y. 4, M. 2, 54—56, et Arg. Z.
6903, B. A. Catalogue . .	7	19 59 32.66	B. A. Catalogue	19 13 59.89	Y. 7, M. 2, 54, 56.
(°6) 1857	12	19 19 2.99	Washington Equatorial . .	— 21 0 7.52	Washington Equatorial.

APPARENT PLACES OF THE STAR *k*.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of Comp.
1850.	h. m. s.		h. m. s.	° ′ ″	
October 16	6 52 36.8	1719, G. 12 Y.	19 17 41.96	— 20 44 54.84	2
19	7 30 33.2	(°6,) 1857	19 17 42.94	20 44 57.03	5
22	6 35 33.1	36878, Lalande	19 17 43.53	— 20 44 56.02	1

APPARENT PLACES OF COMET I, 1850.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of comp.
1850.	h. m. s.		h. m. s.	° ′ ″	
June 2	10 22 13.1	(° 9)	17 18 5.03	+ 73 46 44.59	12
3	10 18 10.4	2418, Groombridge	17 10 38.26	73 35 58.68	5
		2420, Groombridge	17 10 38.66	73 36 5.36	5
4	9 59 45.4	5769, B. A. Catalogue	17 3 12.83	73 23 19.82	10
		2418, Groombridge	17 3 12.47	73 23 22.05	10
5	10 14 7.1	(° 10)	16 55 31.10	73 8 24.16	9
		5769, B. A. Catalogue	16 55 32.64	73 8 25.66	9
9	9 15 53.8	2356, Groombridge	16 25 14.15	71 46 50.06	4
10	10 37 19.4	Argelander's Zones, 115, 164	16 17 15.88	71 18 23.02	11
		Argelander's Zones, 115, 165	16 17 15.54	71 18 28.85	11
11	9 37 19.3	2319, Groombridge	16 10 7.72	70 49 44.52	6
		Argelander's Zones, 115, 156	16 10 7.77	70 49 46.06	6
12	10 2 8.7	(° 21)	16 2 40.06	70 15 29.96	4
		(° 22)	16 2 40.00	70 15 23.42	4
13	10 7 37.9	Argelander's Zones, 114, 4	15 55 29.20	69 40 38.53	8
		Argelander's Zones, 114, 5	15 55 28.97	69 40 41.41	8
19	9 5 9.1	(° 12)	15 16 33.28	64 58 14.28	7
24	9 11 42.2	Argelander's Zones, 7, 26	14 49 34.19	59 11 50.99	4
29	12 17 34.8	(° 14)	14 27 6.52	51 11 25.07	10
30	12 2 25.0	(° 15)	14 23 17.48	49 21 37.12	7
		(° 16)	14 23 19.31	49 21 38.96	7
July 1	11 21 10.1	(° 17)	14 19 44.89	47 28 30.38	10
4	10 21 15.6	(° 19)	14 9 46.60	41 8 51.56	7
7	9 36 18.7	(° 20)	14 0 57.22	33 56 13.30	8
10	10 50 47.2	4529, Rumker	13 52 57.90	25 44 14.04	6
11	11 9 56.6	4551, Rumker	13 50 31.75	22 52 45.82	6
14	10 7 49.1	Weisse XIII, 737	13 43 56.41	+ 14 18 56.54	10
20	9 13 3.7	4547, B. A. Catalogue	13 32 41.25	− 2 43 17.64	8

MEAN PLACES, 1850.0, OF STARS COMPARED WITH COMET I, 1850.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
(° 9)	9.5	17 17 42.89	Washington West Transit	+ 73 35 52.72	M. 2, 50.
2418, Groombridge	8	17 3 33.99	Ast. Nach., 798	73 24 11.73	M. 2, Y. 5, 50, 56.
2420, Groombridge	8	17 4 29.67	West Transit	73 31 10.47	M. 2, Y. 2, 50, 55.
5769, B. A. Catalogue	7	16 59 16.84	Ast. Nach., 798	73 21 10.88	M. 2, Y. 2, 50, 57.
(° 10)	9.5	16 56 37.00	Ast. Nach., 798	73 9 5 84	Y. 3, 55.
2356, Groombridge	7	16 26 59.08	Ast. Nach., 798	71 43 5.56	Y. 5, 55, 57.
Argelander's Zones, 115, 164	8.5	16 15 46.42	Ast. Nach., 798	71 12 17.36	Y. 3, 55, 56.
Argelander's Zones, 115, 165	8.5	16 15 55.73	Ast. Nach., 798	71 18 34.33	Y. 3, 55, 57.
2319, Groombridge	7.5	16 5 22.97	Radcliffe Observations	70 39 44.73	Y. 2, 56.
Argelander's Zones, 115, 156	9	16 8 20.58	Washington Equatorial	70 43 25.87	Y. 2, 57.
†(° 21)	9	15 58 40.68	West Transit	70 7 20.67	M. 1, 50.
†(° 22)	9	15 59 42.76	West Transit and Arg. Zones.	70 8 26.94	Argelander's Zones.
(° 11)	9.5	16 3 11.60	Washington Equatorial	70 17 54.18	Washington Equatorial.
Argelander's Zones, 114, 4	9	15 59 32.56	West Transit	69 37 49.67	M. 2, Y. 2, 50, 57.
Argelander's Zones, 114, 5	9	15 59 53.92	West Transit	69 38 35.28	M. 1, Y. 1, 50, 57.
(° 12)	10	15 18 14.72	Ast. Nachrichten, 798	64 54 17.78	M. 2, 50.
Argelander's Zones, 7, 26	9	14 53 29.29	Ast. Nach. and Transit	59 7 6.53	M. 1, 50, and Arg. Zones.
(° 13) not used	9	14 53 42.58	Ast. Nach., 798	59 7 32.90	A. N., 798.
(° 44)	9	14 26 42.79	Ast. Nach., 798	50 59 6.74	Y. 2, 57, and A. N.
(° 15)	9	14 22 15.21	Ast. Nach., 798	49 20 28.70	A. N., 798.
(° 16)	9	14 24 17.50	Ast. Nach., 798	49 12 38.98	Y. 1, 57, A. N.
(° 17)	8.5	14 18 33.74	Ast. Nach., 798	47 27 3.76	Y. 3, 57, A. N.
(° 18) not used	9	14 14 7.22	Ast. Nach., 798	43 30 27.30	Ast. Nach., 798.
(° 19)	9	14 10 21.35	Ast. Nach., 798	41 6 0.81	Y. 3, 57, A. N.
(° 20)	9	14 1 8.21	Ast. Nach., 798	34 7 4.06	Y. 3, 57, A. N.
4529, Rumker	6	13 50 33.85	Ast. Nach., 798	25 44 3.09	Y. 4, 56, 57, A. N.
4551, Rumker	8	13 54 2.61	Ast. Nach., 798	22 42 20.96	Y. 3, 57, A. N.
Weisse XIII, 737	8.5	13 42 46.84	Ast. Nach., 798	+ 14 14 1.48	Y. 4, 55, 57, A. N.
4547, B. A. Catologue	7	13 30 1.89	Ast. Nach., 798	− 2 28 8.03	Y. 2, 57, A. N.

† There are stars in A. Z., 114, 1 and 114, 2, of the same ascension and nearly the same declination.

APPARENT PLACES OF PARTHENOPE.

MEAN TIME—WASHINGTON.			COMPARISON STAR	α	δ	No. of Comp.
1850.		h. m. s.		h. m. s.	° ′ ″	
July	11	10 2 52.3	Weisse XIV, 1016	14 53 30.16	— 11 13 19.32	3
	14	8 49 47.3	Weisse XIV, 1016	14 54 35.50	11 18 6.65	8
	19	9 18 33.1	Weisse XIV, 1072	14 56 58.67	11 43 39.46	6
August	11	9 21 29.6	Weisse XV, 265	15 15 24.37	14 2 50.13	9
			Weisse XV, 281	15 15 24.69	14 2 49.14	9
	12	8 18 11.2	Weisse XV, 249	15 16 25.30	14 9 8.78	7
	14	8 45 52.4	Weisse XV, 400	15 18 35.32	14 22 32.93	5
	15	8 26 59.3	Weisse XV, 400	15 19 41.38	14 29 6.77	8
	16	8 25 21.6	Weisse XV, 400	15 20 48.70	14 35 51.19	10
	23	8 39 10.6	5184, B. A. Catalogue	15 29 11.45	15 23 14.59	3
	25	7 2 1.5	5184, B. A. Catalogue	15 31 41.75	15 36 34.95	9
	26	8 14 41.4	5184, B. A. Catalogue	15 33 0.19	15 43 24.64	5
	27	6 56 47.1	(° 23)	15 34 17.70	15 50 8.99	8
	28	7 50 16.0	(° 23)	15 35 36.97	15 56 53.77	9
	29	7 44 37.2	(° 24)	15 36 57.09	16 3 40.01	13
	30	8 12 21.3	(° 24)	15 38 20.48	16 10 28.42	3
	31	7 48 39.2	28697, Lalande	15 39 41.02	16 17 11.50	8
September	2	8 36 38.2	5257, B. A. Catalogue	15 42 31.92	16 30 45.31	4
	3	7 51 24.8	5257, B. A. Catalogue	15 43 54.29	16 37 19.76	12
	6	8 18 30.6	(° 25)	15 48 16.39	16 57 34.23	5
	10	7 39 52.6	29306, Lalande	15 54 13.35	17 23 46.56	4
	11	7 23 35.7	29306, Lalande	15 55 44.00	17 30 12.70	8
	12	7 45 57.0	29306, Lalande	15 57 18.26	17 36 46.81	5
	13	7 41 1.4	29306, Lalande	15 58 51.63	17 43 10.39	5
	17	7 22 26.5	5408, B. A. Catalogue	16 5 12.25	18 8 36.85	12
	21	6 56 14.9	29696, Lalande	16 11 43.73	18 33 14.25	7
	22	7 7 9.5	29696, Lalande	16 13 24.60	18 39 18.42	8
	23	6 59 6.7	29696, Lalande	16 15 4.91	18 45 20.34	5
October	1	6 57 22.6	5580, B. A. Catalogue	16 28 57.09	19 31 34.69	5
	2	6 46 17.7	5580, B. A. Catalogue	16 30 43.57	19 37 0.89	6
	3	6 58 18.2	5580, B. A. Catalogue	16 32 32.49	19 42 29.28	16
	4	6 49 55.9	5580, B. A. Catalogue	16 34 19.98	19 47 49.35	8
	5	6 39 18.6	30479, Lalande	16 36 7.09	19 53 7.80	4
	6	6 48 38.2	30479, Lalande	16 37 57.48	19 58 21.45	12
	7	6 34 54.7	30479, Lalande	16 39 46.26	20 3 24.55	7
	8	6 41 25.0	5663, B. A. Catalogue	16 41 38.80	20 8 34.04	5
	9	6 31 36.2	5663, B. A. Catalogue	16 43 29.56	— 20 13 31.45	4

MEAN PLACES FOR 1850.0 OF STARS COMPARED WITH PARTHENOPE.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
Weisse XIV, 1016	9	14 54 9.66	Weisse Catalogue	— 11 8 46.44	Y. 3, 55, 57.
Weisse XIV, 1072	9	14 56 45.57	Weisse Catalogue	11 48 22.05	Y. 2, 55, 57.
Weisse XV, 265	8	15 15 10.31	Washington Transit	13 48 34.75	Y. 2, 55, 57.
Weisse XV, 281	8	15 15 45.62	Washington Transit	13 46 18.16	Y. 3, 55, 57.
Weisse XV, 249	9	15 14 16.63	Weisse Catalogue	14 20 13.74	Y. 3, 55, 57.
Weisse XV, 400	8	15 21 35.10	Washington Transit	14 17 35.86	Y. 3, 55, 57.
5184, B. A. Catalogue	7	15 34 20.39	Madrass Catalogue	15 31 42.43	Y. 3.
(° 23)	10	15 33 34.46	Washington Equatorial	15 38 17.20	Washington Equatorial.
(° 24)	9	15 36 1.26	Washington Equatorial	15 55 19.82	Washington Equatorial.
28697, Lalande	7	15 37 20.27	Argelander's Zones	16 28 33.13	Y. 3, 56.
5257, B. A. Catalogue	5	15 45 17.43	Argelander's Zones & Rumker	16 17 5.05	Argelander's Zones & Rumker.
(° 25)	9	15 46 55.17	Washington Equatorial	16 48 35.65	Y. 1, 57.
29306, Lalande	8	15 58 38.19	Lalande, Catalogue	17 31 36.01	Y. 3, 56, 57.
5408, B. A. Catalogue	7	16 6 0.40	B. A. Catalogue	18 8 44.58	Y. 4, 56, 57.
29696, Lalande	7	16 10 33.41	Argelander's Zones	18 27 33.26	Y. 4, 55, 57.
5580, B. A. Catalogue	7	16 33 5.04	Argelander's Zones	19 37 54.36	Y. 5, 55, 57.
30479, Lalande	8	16 38 6.06	Argelander's Zones	19 49 14.30	Y. 5, 55, 57.
5663, B. A. Catalogue	6	16 44 34.11	B. A. Catalogue	20 9 34.27	Y. 2, M. 3, 55, 57.
5467, B. A. Catalogue	5	16 15 19.88	Argelander's Zones	— 19 40 47.87	Y. 5, 55, 57.

APPARENT PLACES OF FLORA.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of comp.
1850.	h. m. s.		h. m. s.	° ′ ″	
August 28	10 35 56.9	Weisse O, 641	0 38 31.76	— 6 40 6.85	10
September 11	9 52 4.0	Weisse O, 560	0 32 8.85	8 37 29.14	9
17	12 15 17.6	Weisse O, 444	0 27 38.24	9 30 5.20	8
20	10 9 0.0	Weisse O, 421	0 25 23.52	9 54 41.24	5
21	11 17 53.6	Weisse O, 421	0 24 31.57	10 3 9.12	9
October 1	9 49 17.7	Weisse O, 239	0 15 56.05	11 13 51.06	10
3	9 22 53.5	Weisse O, 239	0 14 13.55	11 25 10.91	6
4	8 49 11.1	Weisse O, 239	0 13 23.85	11 30 19.02	9
6	9 17 49.9	Weisse O, 189	0 11 44.91	11 39 55.80	13
7	8 17 54.7	Weisse O, 189	0 10 56.06	11 44 18.91	11
8	8 16 59.1	Weisse O, 189	0 10 8.41	11 48 25.04	10
9	8 32 38.9	Weisse O, 189	0 9 21.12	11 52 14.37	6
15	8 24 37.3	Weisse O, 102	0 5 7.40	12 7 57.26	14
16	8 14 3.5	Weisse O, 102	0 4 31.28	12 9 23.63	14
22	10 7 32.1	Weisse XXIII, 1242	0 1 22.42	12 10 55.05	9
29	10 28 9.8	Weisse XXIII, 1242	23 59 11.54	11 57 33.28	4
31	9 11 57.2	Weisse XXIII, 1227	23 58 52.61	11 51 5.49	14
November 1	9 2 13.4	Weisse XXIII, 1227	23 58 46.33	11 47 21.81	10
2	9 55 1.5	Weisse XXIII, 1208	23 58 42.43	11 43 9.61	6
4	9 34 0.4	Weisse XXIII, 1208	23 58 40.57	11 34 15.35	10
9	9 41 46.2	Weisse O, 13	23 59 12.01	11 6 56.05	8
13	8 56 27.2	Weisse XXIII, 1195	0 0 14.26	10 40 44.91	6
14	8 33 57.1	Weisse XXIII, 1195	0 0 34.95	10 33 38.80	6
18	8 39 20.7	Weisse O, 41	0 2 17.88	10 2 37.59	10
21	9 53 45.3	Weisse O, 28	0 3 56.49	9 36 32.03	3
30	9 7 26.7	Weisse O, 199	0 10 20.05	8 10 59.05	10
December 21	8 17 54.9	Weisse O, 601	0 33 5.20	— 4 1 39.29	12

MEAN PLACES FOR 1850.0 OF STARS COMPARED WITH FLORA.

STAR.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
Weisse O, 641	9	0 36 53.29	Weisse Catalogue	— 6 26 52.84	Y. 2, 1857.
Weisse O, 560	8	0 32 46.77	West Transit	8 28 38.24	Y. 3.
Weisse O, 444	9	0 26 12.34	Weisse Catalogue	9 32 48.90	Y. 2.
Weisse O, 421	9	0 25 0.03	West Transit	9 51 44.35	Y. 2.
Weisse O, 239	9	0 13 44.11	Weisse Catalogue	11 30 59.60	Y. 2.
Weisse O, 189	8	0 11 9.19	West Transit and Rumker	11 46 54.00	Y. 2.
Weisse O, 102	9	0 6 20.41	Weisse Catalogue	12 8 18.84	Y.
Weisse XXIII, 1242	9	0 0 8.24	Weisse Catalogue	11 57 51.46	Y. 2.
Weisse XXIII, 1227	9	23 59 42.73	Weisse Catalogue	11 52 5.06	Y. 2.
Weisse XXIII, 1208	8	23 58 36.48	Weisse Catalogue	11 36 49.14	Y. 2.
Weisse O, 13	8.5	0 1 50.55	Weisse Catalogue	11 1 21.54	Y. 3.
Weisse XXIII, 1195	8	23 57 49.58	Weisse Catalogue	10 27 0.44	Weisse Catalogue.
Weisse O, 41	9	0 2 49.32	Weisse Catalogue	10 7 32.39	Y. 2.
Weisse O, 28	9	0 2 23.07	West Transit	9 48 34.78	Y. 2.
Weisse O, 199	7	0 11 56.87	West Transit	8 3 7.90	Y. 2.
Weisse O, 601	9	0 34 29.09	Weisse Catalogue	— 3 52 27.47	Y. 2.

APPARENT PLACES OF COMET II, 1850.

MEAN TIME—WASHINGTON.		COMPARISON STAR.	α	δ	No. of comp.
1850.	h. m. s.		h. m. s.	° ′ ″	
September 16	13 35 44.8	Bessel's Zones, 452, 77	7 45 21.43	+ 39 31 1.10	14
17	13 37 43.9	Bessel's Zones, 451, 60	7 57 29.50	+ 36 54 25.80	6
October 4	16 54 3.9	Weisse X, 224	10 10 55.50	— 4 41 45.28	5
		Weisse X, 229	10 10 55.86	4 41 42.47	5
6	16 59 3.0	(° 26)	10 21.2	7 48.7	12
7	17 42 46.8	153 Lamont's Zones	10 26 15.54	8 59 0.29	5
8	17 5 41.7	Weisse X, 538	10 31 12.80	10 15 5.06	4
		Weisse X, 548	10 31 12.66	10 15 3.50	4
9	17 7 27.8	(° 27)	10 36 3.11	11 24 42.85	3
12	17 18 52.1	Weisse X, 879	10 50 15.76	— 14 24 39.98	2

MEAN PLACES, 1850.0, OF STARS OBSERVED WITH COMET II, 1850.

STARS.	MAG.	α	AUTHORITY.	δ	AUTHORITY.
		h. m. s.		° ′ ″	
Bessel's Zones, 452, 77 . .	7	7 45 47.77	Washington Transit . . .	+ 39 40 31.06	Y. 2, 56, 57.
Bessel's Zones, 451, 60 . .	8	7 58 0.67	Bessel's Zones	+ 36 40 12.72	Bessel's Zones.
Weisse X, 224	7	10 13 12.13	Washington Transit . . .	— 4 37 45.86	Y. 3, 55, 56.
Weisse X, 229	7	10 13 34.90	Washington Transit . . .	4 39 46.94	Y. 3, 55, 56.
(° 26)	9	10 20.9	. . . .	7 40.0	
143, Lamont	8.5	10 26 50.63	Lamont's Zones	9 7 13.35	Lamont's Zones.
Weisse X, 548	9	10 29 57.84	Washington Transit . . .	10 16 0.19	Y. 3, 55.
Weisse X, 548	9	10 30 18.04	Washington Transit . . .	10 16 18.65	Y. 3, 55.
Weisse X, 27	9	10 33 31.16	Washington Equatorial . .	11 25 0.44	Y. 3, 56.
Weisse X, 879	9	10 48 2.96	Washington Transit . . .	— 14 28 19.13	Y. 3, 55.

APPARENT PLACES OF EGERIA.

Mean time—Washington.		Comparison star.	α	δ	No. of Comp.
1850.	h. m. s.		h. m. s.	° ′ ″	
December 24	8 2 49.2	Weisse I, 501	1 33 27.72	+ 11 20 33.69	6
26	6 56 38.2	Weisse I, 501	1 33 52.56	11 33 18.47	10
		Weisse I, 539	1 33 52.55	11 33 18.55	10
27	6 16 19.0	Weisse I, 539	1 34 7.35	+ 11 39 44.25	8

MEAN PLACES, 1850.0, OF STARS COMPARED WITH EGERIA.

Star.	Mag.	α	Authority.	δ	Authority.
		h. m. s.		° ′ ″	
Weisse I, 501	6	1 29 9.07	Rumker	+ 11 22 21.44	Y. 2, M. 1, 54, 56, et Rumk.
Weisse I, 539	8.5	1 31 12.98	Weisse Catalogue	+ 11 40 30.58	Y. 3, 56.

APPARENT PLACES OF VENUS.

Mean time—Washington.		Comparison star.	α	δ	No. of comp.
1850.	h. m. s.		h. m. s.	° ′ ″	
October 19	6 15 43.33	30556, Lalande, (doubtful)	16 40 10.07	— 26 32 38.45	5
	6 16 29.88	30556, Lalande, (doubtful)	16 40 9.91	26 32 45.81	3
21	6 10 14.85	Argelander's Zones, 214, 54	16 47 45.07	26 50 17.27	4
	6 13 8.46	Argelander's Zones, 214, 54	16 47 45.46	26 50 14.33	4
22	5 57 39.10	Argelander's Zones, 388, 85	16 51 27.82	26 58 26.70	5
	5 57 7.59	Argelander's Zones, 388, 85	16 51 27.95	26 58 23.89	4
28	5 56 51.31	Argelander's Zones, 388, 115	17 12 56.90	27 36 49.74	3
	5 58 53.49	Argelander's Zones, 388, 115	17 12 57.25	27 36 52.47	3
November 1	5 45 16.04	7371, LaCaille	17 26 5.67	27 51 37.68	4
	5 50 15.06	7371, LaCaille	17 26 6.18	27 51 40.43	4
2	5 44 50.88	7371, LaCaille	17 29 12.11		5
	5 41 49.95	7371, LaCaille		27 54 0.72	6
	5 44 16.27	7371, LaCaille		27 54 1.89	6
9	5 36 7.98	6063, B. A. Catalogue	17 48 26.76	27 56 30.96	3
	5 39 26.73	6063, B. A. Catalogue	17 48 27.16	27 56 32.02	3
10	5 19 0.07	6063, B. A. Catalogue	17 50 45.84	27 54 50.97	3
	5 16 47.51	6063, B. A. Catalogue	17 50 46.31	27 55 0.27	2
13	5 31 31.44	Argelander's Zones, 223, 38	17 57 6.26	27 47 15.13	4
	5 34 28.82	Argelander's Zones, 223, 38	17 57 6.26	27 47 21.82	4
14	5 24 12.13	Argelander's Zones, 223, 46	17 58 57.22	27 43 45.90	4
	5 26 18.83	Argelander's Zones, 223, 46	17 58 57.26	27 43 52.59	4
21	5 15 15.09	6194, B. A. Catalogue	18 7 51.78	27 6 32.15	11
	5 14 57.12	6194, B. A. Catalogue	18 7 51.76	— 27 6 37.14	10

MEAN PLACES, 1850.0, OF STARS COMPARED WITH VENUS.

Star.	Mag.	α	Authority.	δ	Authority.
		h. m. s.		° ′ ″	
30556, Lalande	7.5	16 40 55.21	Lalande Catalogue	— 26 28 29.32	Y. 8, 56, 57.
Argelander's Zones, 214, 54	8.5	16 49 11.71	Argelander's Zones	26 52 23.71	Y. 5, 56.
Argelander's Zones, 388, 85	7.5	16 51 59.11	Argelander's Zones	27 1 16.69	Argelander's Zones.
Argelander's Zones, 388, 115	8.5	17 13 22.14	Argelander's Zones	27 31 23.96	Argelander's Zones.
‾‾71 Lalande	7	17 28 47.02	B. A. Catalogue	27 56 59.02	Y. 4, 56.
B. A. Catalogue	6.5	17 47 14.76	B. A. Catalogue	28 2 7.18	Y. 4, 56.
der's Zones, 223, 38	8	17 55 54.17	Argelander's Zones	27 50 10.44	Y. 4, 56.
der's Zones, 223, 46	8	17 59 50.53	Argelander's Zones	27 45 3.07	Y. 5, 56.
. A. Catalogue	5.5	18 8 39.99	Argelander's Zones	— 27 5 28.52	Y. 5, 56.

CATALOGUE

OF

STARS OBSERVED

IN THE YEARS

1849 AND 1850.

NATIONAL OBSERVATORY.

4h.—Continued.

Number		NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
				m. s.		° ′ ″	
46		Anonymous - -	49	44 5.86	T. 10	+43 56	
47		Anonymous - -	49	44 23.26	T. 1	43 50	
48		Anonymous - -	49	44 39.88	T. 2	43 51	
49		Anonymous - -	49	45 7.00	T. 2	43 50	
50		Anonymous - -	49	51 34.85	T. 1	44 24	
51	ι	Tauri - - - -	49	54 7.73	T. 1		
			49	8.10	C. 1	21 22 17 95	C. 1
52		Anonymous - -	49	54 24.19	T. 1	45 7	
53		Anonymous - -	49	55 44.58	T. 2	44 30	
54		Tauri, (1562) - -	49	56 36.39	T. 1		
55		Anonymous - -	49	57 45.43	T. 1	26 30	
56		Anonymous - -	49	58 39.90	T. 1	26 7	
57		Anonymous - -	49	58 40.05	T. 1	+26 30	
		5h.					
58		Anonymous - -	49	1 45.27	T. 1	+26 30	
59		Anonymous - -	49	2 4.67	T. 2	26 30	
60		B. Z., 396 - - -	49	3 4.62	T. 1	26 16	
			50	4.87	C. 1	26 16	
			50	4.48	T. 1	26 16	
61	α	Aurigæ - - -	49	5 36.96	T. 9		
			50	36.90	T. 2		
			49	- - -	- -	+45 50 30.34	M. 1
			50	- - -	- -	20.93	M. 1
			49	36.84	C. 16	19.02	C. 4
			50	37.01	C. 3	21.26	C. 1
62		Anonymous - -	49	6 20.65	T. 1	— 8 20	
63	β	Orionis - - -	49	7 19.80	T. 9		
			50	19.84	T. 9		
			49	19.82	C 10	— 8 22 42.04	C. 1
			50	19.91	C. 3		
64		Anonymous - -	49	10 31.52	T. 1	+26 30	
65		Anonymous - -	49	13 53.34	T. 1	26 30	
66		Anonymous - -	49	14 53.33	T. 1	26 30	
67		Anonymous - -	49	15 16.24	T. 1	26 30	
68		Anonymous - -	49	16 48.18	T. 1	26 30	
69	β	Tauri - - - -	49	16 48.78	T. 13		
			50	48.79	T. 11		
			49	48.77	C. 15	28 28 33.03	C. 7
			50	48.77	C. 2		
			49	- - -	- -	30.75	M. 2
70		Anonymous - -	49	17 16.30	T. 1	26 30	
71		Anonymous - -	50	17	- -	38 55 9.18	P. 1
72		Anonymous - -	49	18 47.73	T. 1	26 30	
73		Anonymous - -	50	19	- -	38 55 38.42	P. 1
74		Anonymous - -	49	20 22.61	T. 1	26 30	
75		Anonomous - -	49	21 43.08	T. 1	26 30	
76		Anonymous - -	49	22 35.90	T. 1	+26 30	
77	δ	Orionis - - -	49	24 20.70	T. 16		
			50	20.68	T. 9		
			49	- - -	- -	— 0 24 52.91	M. 1
			49	20.68	C. 14	51.82	C. 1
			50	20.69	C. 5	52.37	C. 1

5h.—Continued.

Number.		NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
				m. s.		° ′ ″	
78	α	Leporis - - -	49	26 6.97	T. 2		
			49	6.96	C. 5		
			50	6.78	C. 1		
79	ε	Orionis - - -	49	28 36.21	T. 14		
			49	36.17	T. 6		
			49	36.19	C. 10		
			49	36.21	C. 5		
80	ζ	Tauri - - - -	49	28 41.03	T. 1		
			49	40.92	C. 1	+21 2 47.04	C. 1
81		10650, Lalande -	50	31	- -	38 6 54.24	P. 1
			49	31	- -	53.60	P. 1
82		10666, Lalande -	50	32	- -	38 7 2.75	P. 1
83		Anonymous - -	49	33	- -	+38 16 33.81	P. 1
84	α	Columbæ - - -	49	34 13.11	T. 3		
			50	13.14	T. 1		
			49	- - -	- -	—34 9 23.41	M. 1
			49	13.17	C. 9	25.98	C. 2
			50	12.94	C. 2	28.65	C. 1
85	α	Orionis - - -	49	47 3.10	T. 10		
			50	3.11	T 11		
			49	3.11	C. 16		
			50	3.11	C. 7	+ 7 22 26.70	C. 4
86	θ	Aurigæ - - -	49	49	- -	37 11 47.20	P. 1
87		Aurigæ, 1935 - -	49	54	- -	37 57 52.13	P. 1
88		11529, Lalande -	50	58	- -	+37 59 40.19	P. 1
		6h.					
89		Anonymous - -	50	6	- -	+38 53 29.58	P. 1
90	μ	Geminorum - -	49	13 53.06	T. 1		
			50	53.28	T. 2		
			49	53.14	C. 6	22 35 9.82	C. 3
			50	53.19	C. 2	8.33	C. 2
91		12134, Lalande -	49	15	- -	37 23 15.62	P. 1
92		Anonymous - -	49	25	- -	37 49 37.97	P. 1
93		Anonymous - -	49	25	- -	37 49 43.50	P. 1
94		2139, Aurigæ - -	49	26	- -	38 33 38.08	P. 2
95	51	Hev. Cephei - -	49	- - -	- -	87 15 22.03	M. 1
		S. P.	49	- - -	- -	20.83	M. 1
			50	28 35.42	C. 1		
96	γ	Geminorum - -	49	29 2.74	C. 2	16 31 21.14	C. 1
97	ξ	Geminorum - -	49	36 52.22	C. 1	+13 2 11.93	C. 1
98	α	Canis Majoris -	49	38 32.31	T. 9		
			50	32.21	T. 18		
			49	32.27	C. 22	—16 30 49.22	C. 7
			50	32.34	C. 6	50.18	C. 3
99		Anonymous - -	49	40 6.59	T. 1	+52 10	
100		Aurigæ, 2239 - -	50	42	- -	+38 28 9.18	P. 1
101	ε	Canis Majoris - -	49	52 43.87	T. 8		
			50	43.86	T. 3		
			49	- - -	- -	—28 46 16.25	M. 2
			49	43.84	C. 9	15.50	C. 2
			50	43.78	C. 5	17.39	C. 1

7h.

Number.	NAME.	Year.	R.A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
102	13873, Lalande -	49	3	- -	+36 22 10.48	P. 1
103	14120, Lalande -	49	10	- -	36 56 34.54	P. 1
104	δ Geminorum - -	49	11 9.59	T. 9		
		50	9.64	T. 9		
		49	- - -	- -	22 15 13.26	M 3
		49	9.61	C. 7	15.06	C. 3
		50	9.79	C. 3	11.86	C. 1
105	14218, Lalande -	49	12	- -	37 2 15.25	P. 1
106	14265, Lalande -	49	18	- -	35 6 18.94	P. 1
107	14484, Lalande -	49	20	- -	38 28 32.25	P. 1
108	14499, Lalande -	49	21	- -	37 4 59.15	P. 1
109	α^1 Geminorum - -	49	- - -	- -	32 12 41.30	M. 2
		49	- - -	- -	43.79	P. 1
110	α^2 Geminorum - -	49	25 1.28	T. 14		
		50	1.27	T. 13		
		49	- - -	- -	32 12 43.88	M. 3
		49	1.27	C. 10	44.25	C. 5
		50	1.27	C 3	41.80	C. 1
111	ο Geminorum - -	49	29	- -	34 55 24.65	P. 1
112	14806, Lalande -	49	29	- -	35 22 45.19	P. 1
113	α Canis Minoris -	49	31 26.85	T. 11		
		50	26.83	T. 14		
		49	- - -	- -	5 36 21.01	M. 1
		49	26.82	C. 13	21.36	C. 4
		50	26.86	C. 3	22.96	C. 1
114	κ Geminorum - -	50	35 23.09	T. 1		
	(2551) - - - -	49	- - -	- -	24 45 10.76	M. 1
		49	23.13	C. 1	12.84	C. 1
		50	23.39	C. 2	10.36	C. 1
115	β Geminorum - -	49	36 7.77	T. 11		
		50	7.73	T. 14		
		49	- - -	- -	28 23 1.75	M. 4
		49	7.75	C. 11	2.43	C. 3
		50	7.79	C. 2	22 58.71	C. 1
116	15882, Lalande -	49	59	- -	+35 53 58.55	P. 1

8h.

Number.	NAME.	Year.	R.A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
117	15 Argus - - - -	49	1 9.32	T. 6		
		50	9.43	T. 6		
		49	9.36	C. 5	−23 52 29.45	C. 4
		50	9.32	C. 2		
118	Anonymous - -	49	22	- -	+37 45 53.25	P. 1
119	θ Cancri - - - -	49	23 2.35	T. 1		
		50	1.94	T. 1		
		49	2.31	C. 1	18 35 54.87	C. 1
120	δ Cancri - - - -	49	36 9.19	T. 1		
		50	9.07	T. 1		
		49	9.30	C. 2	18 42 8.18	C. 2
		50	9.41	C. 1		
121	Anonymous - -	49	37	- -	37 35 9.28	P. 1
122	ε Hydræ - - - -	49	38 49.70	T. 5		
		50	49.71	T. 11		
		49	- - -	- -	6 57 57.11	M. 3
		49	49.75	C. 5	56.89	4 C.
		50	49.67	C. 1		
123	ι Ursæ Majoris -	49	48 54.76	T. 4		
		50	54.89	T. 5		
		49	- - -	- -	48 37 35.42	M. 3
		49	54.73	C. 7	36.82	C. 6

8h.—Continued.

Number.	NAME.	Year.	R.A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
124	α Cancri - - - -	50	50 16.71	T. 2		
		49	16.47	C. 1	+12 26 6.97	C. 1
		50	16.77	C 1		
125	κ Cancri - - - -	50	59 36.93	T 1		

9h.

Number.	NAME.	Year.	R.A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
126	α Hydræ - - - -	49	20 12.91	T. 6		
		50	12.92	T. 10		
		49	- - -	- -	−8 0 41.02	M. 1
		49	12.92	C. 12	40.11	C. 6
		50	12.91	C. 3	39.61	C. 1
127	θ Ursæ Majoris - -	50	22 47.60	C. 1		
128	ξ Leonis - - - -	49	23 51.27	T. 2		
		49	- - -	- -	+11 57 41.42	M. 1
		49	51.42	C. 1	43.24	C. 1
129	ο Leonis - - - -	49	33 8.32	T. 1		
		50	8.26	T. 1		
		49	8.47	C. 2	10 34 21.09	C. 2
130	ε Leonis - - - -	49	37 19.65	T. 7		
		50	19.64	T. 12		
		49	- - -	- -	24 27 43.98	M. 3
		49	19.60	C. 12	45.08	C 8
		50	19.71	C. 2	45.19	C. 1
131	π Leonis - - - -	50	52 16.63	T. 1		
132	η Leonis - - - -	49	59 8.93	C. 1	+17 29 33.26	C. 1

10h.

Number.	NAME.	Year.	R.A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
133	α Leonis - - - -	49	0 22.61	T. 10		
		50	22.66	T. 12		
		49	- - -	- -	+12 41 53.98	M. 2
		49	22.74	C. 14	55.24	C. 7
		50	22.66	C. 3	54.49	C. 2
134	ρ Leonis - - - -	49	24 54.25	T. 1		
		50	46.55	T. 1		
135	Weisse X, 456 -	49	26	- -	−3 30 13.29	M. 1
136	Anonymous - -	49	26 21.10	T. 1	3 51	
137	Anonymous - -	49	26	- -	4 6 11.73	M. 1
138	Anonymous - -	49	28 9.97	T. 1		
		49	- - -	- -	3 49 50.64	M. 1
		49	8.88	C. 1	48.99	C. 1
139	Anonymous - -	49	28 54.62	T. 1	3 51	
140	Weisse X, 577 -	49	28 55	- -	4 3 13.06	M. 1
141	Anonymous - -	49	28 55	- -	4 8 25.88	M. 1
142	Anonymous - -	49	29 43.21	T. 1	3 50	
143	Anonymous - -	49	29 42.99	C. 1	3 28 12.33	C. 1
144	Leonis Min., (3661)	50	33 46.20	T. 1		
145	Weisse X, 637 -	49	35 27.23	T. 1		
		49	- - -	- -	3 37 24.84	M. 1
		49	27.06	C. 1	20.09	C. 1
146	Leonis Min., (3704)	50	40 40.14	T. 1		
147	Leonis Min., (3728)	50	44 54.52	T. 1		
148	Weisse X, 801 -	49	45 1.91	T. 2		
		49	- - -	- -	0 44 35.22	M. 2
149	Anonymous - -	49	45 59.95	T. 1	0 46	
150	Anonymous - -	49	46 2	- -	−0 33 26.87	M. 1

10h.—Continued.

Number.		NAME.	Year.	R A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
				m. s.		° ′ ″	
151		Weisse X, 859 -	49	46 54.37	. .	— 0 43 12.74	c. 1
			49	- - -	. .	16.30	M. 2
152		Anonymous - -	49	47	. .	0 37 35.49	M. 1
			49	48 26.57	T. 2		
153		21026, Lalande -	49	- - -	. .	— 0 49 10.77	M. 2
			49	26.57	C. 1	6.50	C. 1
154	β	Ursæ Majoris - -	50	52 45.50	T. 1		
155	d	Leonis - - - -	49	52 48.85	C. 1	+ 4 25 18.09	C. 1
		(3768) - - - -	49	48.84	T 2		
156	α	Ursæ Majoris - -	49	54 25.71	T. 4		
			49	S.P. 25.49	T. 1	°	
			50	25.73	T. 12		
			49	- - -	- -	+62 33 35.53	M. 1
			49	25.62	C. 8	34.25	C. 5
			49	S.P. 25.47	C. 2		
157	χ	Leonis - - - -	49	57 16.51	T. 3		
			50	16.48	T. 1		
			49	16.52	C. 1		
				11h.			
158		Anonymous - -	49	4 15.30	T. 1	+41.24	
159	δ	Leonis - - - -	49	6 7.40	T. 10		
			50	7.47	T. 14		
			49	- - -	- -	21 20 40.15	M. 1
			49	7.44	C. 8	42.87	C. 4
			50	7.41	C. 1		
160		21563, Lalande -	49	10		+36 18 32.06	P. 1
161	δ	Hydræ et Crateris	49	11 50.65	T. 10		
			50	50.66	T 16		
			49	50.64	C. 7	—13 58 3.71	C. 3
			50	50.48	C. 1		
162	σ	Leonis - - - -	49	13 24.04	T. 2		
			49	24.02	C. 2	+ 6 51 10.21	C. 2
163	τ	Leonis - - - -	49	20 13.40	T. 2		
			50	13.23	T. 1		
			49	12.97	C. 1	3 40 54.38	C. 1
164		Crateris, (3925) -	49	25 10.09	T. 1		
165		Hydræ, (3926) -	50	25 29.42	T. 1		
166	υ	Leonis - - - -	49	29 15.96	T. 1		
			49	16.03	C. 1	0 0 16.30	C. 1
167		Hydræ, (3963) -	50	32 46.24	T. 1		
168		Leonis, (3964) -	50	32 58.71	T. 1		
169		Ursæ Majoris, 3965	49	32		35 2 56.67	P. 1
170	ζ	Crateris - - -	49	37 9.68	T. 1		
171	ν	Virginis - - -	50	38 8.65	T. 1		
172		Anonymous - -	49	40 55.31	T. 1	15 5	
173	β	Leonis - - - -	49	41 24.22	T. 6		
			50	24.24	T. 15		
			49	- - -	- -	+15 24 36.94	M. 1
			49	24.27	C. 11	38.19	C. 5
			50	24.23	C. 6	38.98	C. 2
174	β	Virginis - - -	49	42 52.78	T. 1		
			50	52.73	T. 2		
			49	52.81	C. 1		

11h.—Continued.

Number.		NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
				m. s.		° ′ ″	
175	γ	Ursæ Majoris -	49	45 54.98	T. 2		
			50	55.08	T. 8		
			49	54.93	C. 7		
			50	54.94	C. 3		
176		22565 Lalande -	49	51		+37 47 47.72	P. 1
177		Virginis, (4063) -	49	55 55.13	T. 1		
				12h.			
178		Virginis, (4083) -	49	0 19.74	T. 1		
179		Virginis, (4114) -	49	5 47.55	T. 1		
180	η	Virginis - - -	49	12 13.99	T. 3		
			49	- - -	- -	+ 0 10 2.41	M. 1
			49	13.91	C. 4	2.85	C. 3
181		Virginis, (4168) -	49	14 54.36	T. 2		
182		Virginis, (4200) -	49	20 9.82	T. 1		
183	β	Corvi - - - -	49	26 30.92	T. 9		
			50	30.88	T. 14		
			49	- - -	- -	—22 33 59.99	M. 2
			49	30.87	C. 9	57.65	C. 1
			50	30.92	C. 7	57.91	C. 3
184	γ	Virginis - - -	49	34 3.84	T. 1		
			49	3.57	C. 2	— 0 37 35.95	C. 1
185		Virginis, (4286) -	49	38 2.28	T. 1		
186		Weisse XII, 708 -	50	41 23.16	T. 2		
187	δ	Virginis - - -	49	48 3.03	T. 1		
188	12	Canum Venaticor.		49 0.18	T. 5		
				0.14	T. 14		
				0.14	C. 1		
				13h.			
189	θ	Virginis - - -	50	2 11.29	T. 1		
190	α	Virginis - - -	49	17 17.75	T. 19		
			50	17.78	T. 19		
			49	- - -	- -	—10 22 35.50	M. 1
			50	- - -	- -	36.20	M. 1
			49	17.65	C. 4		
			50	17.65	C. 2	32.84	C. 1
191	h	Virginis - - -	49	25 4.48	T. 1		
192		Anonymous - -	49	36 22.90	T. 1	+22 43	
193		Anonymous - -	49	36 52.72	T. 1	22 43	
194		Anonymous - -	49	37 13.16	T. 1	22 43	
195		B. Z., 460 - -	49	37 18.00	- -	22 32 24.74	M. 1
196		Anonymous - -	49	38 17.07	T. 1	22 43	
197		Anonymous - -	49	41 32.27	T. 1		
			49	- - -	- -	22 46 15.26	M. 1
			49	32.17	C. 1	2.78	C. 1
198	η	Ursæ Majoris - -	49	41 37.39	T. 5		
			50	37.47	T. 16		
			49	- - -	- -	50 3 49.37	M. 2
			49	37.43	C. 12	49.78	C. 5
			50	37.40	C. 9	49.78	C. 3
199		B. Z., 412 - -	49	42	- -	+23 1 57.98	C. 3

° This observation, in the list of mean places, page 92, is put in the hour of the lower transit.

13h.—Continued.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
200	Anonymous	49	42 0.81	T. 1	+22 43	
201	υ Bootis	49	42 14.53	T. 1		
202	Anonymous	49	43 16.04	T. 1		
		49	- - -	- -	22 42 40.76	M. 1
		49	16.08	C. 1	43.92	C. 1
203	η Bootis	49	47 32.51	T. 13		
		50	32.44	T. 19		
		50	- - -	- -	19 9 5.91	M. 1
		49	32.51	C. 8	6.24	C. 2
		50	32.55	C. 6	5.85	C. 3
204	25674, Lalande	49	50 20.82	T. 1		
		49	- - -	- -	24 6 14.20	M. 2
		49	20.77	C. 1	14.88	C. 1
205	Anonymous	49	51 38.28	T. 1	23 47	
206	B. Z., 412	49	51 22.00	- -	23 36 4.51	M. 1
207	B. Z., 412	49	52 42.43	T. 1	23 47	
208	B. Z., 412	49	- - -	- -	23 39 35.30	M. 1
209	Anonymous	49	52.58	- -	24 1 47.77	M. 2
210	Anonymous	49	54 21.24	T. 1	23 47	
211	B. Z., 412	49	54 31.16	C. 1	23 55 58.19	C. 1
		49	31.35	T. 1		
		49	- - -	- -	56.87	M. 2
212	Anonymous	49	56 24.48	C. 1	+23 49 52.88	C. 1
213	θ Centauri	50	57 52.34	T. 6		
		50	- - -	- -	−35 37 45.07	M 1
		50	52.76	C. 2	49.85	C. 1
214	Anonymous	49	58 53.40	T. 1	+23 56	
215	Anonymous	49	59	- -	23 54 59.39	M. 1
216	Anonymous	49	59 3.68	C. 1	23 55 37.15	C. 1
217	B. Z, 412	49	- - -	- -	+24 6 26.57	M. 2
		49	59 22.53	C. 1	28.16	C. 1

14h.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
218	Hydræ, (4711)	50	4 39.24	T. 4		
		50	- - -	- -	−25 54 17.99	M. 3
219	κ Virginis	50	4 54.05	T. 1		
220	ι Virginis	50	8 9.21	T. 1		
221	α Bootis	49	8 49.17	T. 20		
		50	49.21	T. 30		
		49	- - -	- -	+19 57 56.19	M. 3
		50	- - -	- -	55.35	M. 1
		49	49.24	C. 26	57.93	C. 5
		50	49.26	C. 11	57.40	C. 6
		49	- - -	- -	58.25	P. 5
		50	- - -	- -	57.94	P. 1
221a	Anonymous	49	8	- -	+35 16 54.00	P. 1
222	Hydræ, (4763)	50	14 27.80	T. 4		
		50	- - -	- -	−27 3 44.37	M. 3
223	Hydræ, (4784)	50	19 24.05	T. 5		
		50	- - -	- -	−28 48 51.68	M. 3
224	Bootis, 4812	50	26	- -	+38 58 0.30	M. 2
225	π Bootis	49	33 40.72	T. 1		
226	4 Libræ, (4854)	- -	34 33.88	T. 6		
		- -	33.81	C. 1	−24 21 20.88	C. 1
		- -	- - -	- -	16.98	M. 3
227	Anonymous	50	38	- -	+27 9 7.80	M. 1

14h.—Continued

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
228	ε Bootis	49	38 26.11	T. 16		
		50	26.15	T. 23		
		49	- - -	- -	+27 42 32.82	M.
		50	- - -	- -	33.18	M.
		49	26.10	C. 7	34.53	C.
		50	26.18	C. 1	32.14	C.
229	2 Libræ, (4894)	49	42 24	- -	−15 22 12.22	M.
230	α² Libræ	49	42 35.27	T. 15		
		50	35.24	T. 22		
		49	- - -	- -	15 24 54.36	M.
		49	35.21	C. 5	53.67	C.
		50	35.26	C. 2	51.71	C.
231	Libræ, (4913)	50	45 38.26	T. 2		
		50	- - -	- -	24 1 29.83	M.
		50	38.00	C. 2	29.77	C.
232	ξ² Libræ	50	48 38.17	T. 1		
233	27221, Lalande	50	48		22 24 0.26	M.
234	Hydræ, (4930)	50	49 47.16	T. 4		
		50	- - -	- -	−27 3 4.58	M.
		50	47.18	C. 1	8.97	C.
235	β Ursæ Minoris	49	51 12.06	T. 5		
		50	12.06	T. 13		
		49	- - -	- -	+74 46 5.73	M.
		50	- - -	- -	6.35	M.
		49	11.97	C. 6	5.32	C.
		50	12.01	C. 2		
	S. P.	50	11.66	C. 1	7.14	C.
236	Anonymous	50	51 32.24	T. 1		
237	27390, Lalande	49	52	- -	+35 42 6.03	P.
238	δ Libræ	49	52 57.54	C. 1		
239	Hydræ, (4940)	50	53 10.52	T. 4		
		50	- - -	- -	−27 27 44.63	M.
240	Anonymous	50	53 29.16	T. 1	+59 7	
241	Libræ, (4941)	49	53 32.44	T. 1		
242	Anonymous	50	53 42.63	T. 1		
		50	- - -	- -	+59 7 46.46	M. 4

15h.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
243	ι¹ Libræ	50	3 40.50	T. 1		
244	Lupi, (5009)	50	5 26.60	T. 4		
		50	- - -	- -	−30 57 17.81	M. 3
		50	26.75	C. 1	16.59	C. 1
245	27803, Lalande	49	7	- -	+35 26 41.15	P. 1
246	β Libræ	49	8 56.38	T. 15		
		50	56.41	T. 13		
		49	- - -	- -	− 8 49 33.24	M. 8
		50	- - -	- -	34.68	M. 2
		49	56.42	C. 5	33.52	C. 3
		50	56.41	C. 5	32.82	C. 4
247	27837, Lalande	50	9 45.71	T. 1		
248	27852, Lalande	50	10 5.34	T. 1		
249	28090, Lalande	50	17 25.27	T. 1		
250	Anonymous	50	18 15.75	T. 2	+64 54 18.67	M. 2
		50	- - -	- -		
251	Arg. Z., 209, 54	50	23 26.68	T. 3	−21 26 62.69	C. 1
		50	- - -	- -		
252	Libræ, (5125)	49	25 59.02	T. 1		

15h.—Continued.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
253	α Coronæ Borealis -	49	28 20.18	T. 15		
		50	20.23	T. 10		
		49	- - -	- -	+27 13 21.74	M. 4
		50	- - -	- -	20 49	M. 1
		49	20..19	C. 7	23 10	C. 3
		49	- - -	- -	20 44	P. 1
254	28414, Lalande -	50	28 59.48	T. 1	—22 38 23.09	C. 2
		50	59.39	C. 1		
255	28446, Lalande -	50	29 56.00	T. 2	22 33 13.03	C. 3
		50	- - -	C. 1		
256	ψ¹ Lupi - - - -	50	30 14.86	- -	33 55 2.83	M. 1
		50	- - -	- -		
257	28466, Lalande -	50	30 32.41	T. 2	22 39 17.31	C. 2
		50	32.29	C. 2		
258	ψ² Lupi - - - -	50	33 8.17	T. 2	—34 13 25.24	M. 1
		50	- - -	- -		
259	Anonymous - -	50	36 37.64	T. 1		
260	α Serpentis - - -	49	36 52.92	T. 17		
		50	52.87	T. 19		
		49	- - -	- -	+ 6 54 5.12	M. 2
		49	52.88	C. 8	3.38	C. 4
		50	52.91	C. 1		
261	κ Coronæ Borealis -	49	44	- -	+36 7 33.54	P. 1
262	28891, Lalande -	50	45 0.82	T. 1		
263	ζ Ursæ Minoris - -	49	49 31.57	T. 2		
		50	31.75	T. 17		
		49	- - -	- -	+78 15 12.35	M. 1
		50	- - -	- -	13.79	M. 1
		49	31 43	C. 5	10.27	C. 3
		50	31.77	C. 3	11.48	C. 3
264	Libræ, (5290) -	49	49 47.61	T. 1		
265	β¹ Scorpii - - - -	49	56 43.27	T. 7		
		50	43.23	T. 8		
		49	- - -	- -	—19 23 24.38	M. 1
		50	- - -	- -	24.74	M. 1
		49	43.34	C. 2	26.18	C. 1
		50	43.20	C. 1	19.11	C. 1
266	Scorpii, (5333) -	49	57 2.18	C. 1		
267	Anonymous - -	50	58 40.66	T. 2	+70.7	
268	Anonymous - -	50	59	- -	69 39 46.54	M. 1
269	Anonymous - -	50	59 32.88	T. 1		
		50	- - -	- -	69 37 50.39	M. 1
270	Anonymous - -	50	59 42.73	T. 2		
		50	- - -	- -	70 8 27.41	M. 1
271	Anonymous - -	50	59 54.41	T. 1		
		50	- - -	- -	+69 38 35.33	M. 1

16h.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
272	c¹ Scorpii - - - -	50	3 0.34	T. 2		
273	ν Scorpii - - - -	49	3 16.97	T. 2		
		49	16.81	C. 1		
274	2319, Groomb. -	50	5	- -	+70 39 46.60	M. 1
275	δ Ophiuchi - - -	49	6 29.26	T. 8		
		49	29.24	T. 9		
		49	- - -	- -	— 3 18 13.80	M. 2
		49	29.25	C. 6	14.15	C. 3
		50	29.26	C. 4	12.15	C. 4

16h.—Continued.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
276	Arg. Z., 210, 43 -	50	6 43.02	T. 2		
		50	43.08	C. 1	—24 44 6.36	C. 1
277	Arg. Z., 115, 156 -	50	8 21	- -	+70 43 24.47	M. 1
278	ψ Ophiuchi - - -	49	15 19.86	T. 2		
		49	15 19.69	C. 1		
279	Arg. Z., 115, 164 -	50	15 45.53	C. 1	71 12 17.43	M. 2
		50	- - -	- -	17.57	C. 1
280	Arg. Z., 115, 165 -	50	15 55.35	T. 1		
		50	- - -	- -	+71 18 36.13	M. 2
		50	55.90	C. 1	31.76	C. 1
281	α Scorpii - - - -	49	20 12.99	T. 7		
		50	13.14	T. 8		
		49	- - -	- -	—26 5 38.59	M. 2
		50	- - -	- -	38.78	M. 1
		49	13.01	C. 4	38.61	C. 3
		50	12.98	C. 5	39.98	C. 5
282	η Draconis - - -	50	21 58.38	T. 1		
		50	- - -	- -	+61 51 16.35	M. 1
283	φ Ophiuchi - - -	49	22 33.51	T. 2		
284	2356, Groomb. -	50	26 59.19	T. 1		
		50	- - -	- -	71 43 5.05	M. 1
285	Anonymous - -	49	28	- -	35 48 53.27	P. 1
286	ζ Herculis - - -	49	35	- -	+31 52 39.74	P. 1
287	ε Scorpii - - -	50	40 27.16	T. 7		
		50	- - -	- -	—34 0 54.20	C. 1
288	20 Ophiuchi - - -	49	41 32.36	T. 1		
		49	32.29	C. 1	—10 30 47.13	C. 1
289	2404, Groomb. -	50	56 37.17	T. 1		
		50	- - -	- -	+73 9 4.72	M. 1
		50	36.54	C. 1	2.24	C. 1
290	Ursæ Min. (5769)	50	59 16.86	T. 1		
		50	- - -	- -	+73 21 10.58	M. 1
		50	17.68	C. 1	- - - -	C. 1

17h.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
291	ε Ursæ Majoris - -	50	1 31.09	T. 4		
		50	- - -	- -	+82 16 32.50	M. 2
		49	30.01	C. 4	29.33	C. 2
		50	- - -	- -	33.99	C. 1
292	η Ophiuchi - - -	49	1 46.57	T. 1		
		50	46.80	T. 2		
		49	- - -	- -	—15 32 1.95	M. 1
		49	46.55	C. 1		
		50	46.78	C. 1	31 58.75	C. 1
293	2418, Groomb. & A. Z., 126, 47 -	50	3 33.90	T. 1		
		50	- - -	- -	+73 24 11.26	M. 3
		50	33.96	C. 1	10.86	C. 2
294	2420, Groomb. -	50	4 29.60	T. 1		
		50	29.30	C. 1	+73 31 1.84	C. 1
		50	- - -	- -	4.37	M. 3
295	A Ophiuchi - - -	50	6 7.54	T. 3		
296	Ophiuchi, (5813) -	50	7 0.22	T. 2		
		50	- - -	- -	—26 19 27.41	M. 1
297	Ophiuchi, (5815) -	50	7 14.13	T. 1		
298	α Herculis - - -	49	7 48.45	T. 6		
		50	48.44	T. 8		
		50	- - -	- -	+14 33 55.24	M. 2
		49	48.52	C. 4	53.36	C. 1
		50	48.56	C. 1		

17h.—Continued.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
299	Ophiuchi, (5831) -	50	8 52.03	T. 1		
300	Anonymous - -	50	10 19.62	T. 2	+73.35	
301	ξ Ophiuchi - - -	50	12 0.99	T. 1		
		50	1.06	C. 1	−20 56 43.71	C. 1
302	Ophiuchi, (5846) -	50	12 31.74	T. 1		
		49	- - -	- -	24 44 55.68	M. 1
303	θ Ophiuchi - - -	49	12 47.93	T. 2		
		50	47.94	T. 4		
		49	- - -	- -	−24 50 38.94	M. 1
		49	47.96	C. 1		
		50	- - -	- -	36.38	C. 1
304	Anonymous - -	50	17 42.65	T. 2		
		50	- - -	- -	+73 35 53.61	M. 2
305	ν Scorpii - - - -	50	20 34.16	T. 3		
		50	- - -	- -	−37 10 12.39	M. 2
306	λ Scorpii - - - -	50	23 25.60	T. 2		
		50	- - -	- -	−36 59 18.13	M. 2
		50	- - -	- -	20.18	C. 2
307	β Draconis - - -	50	27 2.74	T. 3		
		50	- - -	- -	+52 24 52.11	M. 6
		50	2.71	C. 1		
308	α Ophiuchi - - -	49	27 58.30	T. 7		
		50	58.30	T. 19		
		49	- - -	- -	+12 40 24.57	M. 1
		49	58.32	C. 6	22.86	C. 2
		50	58.35	C. 2		
309	ε Serpentis - - -	50	32 58.93	T. 1		
310	58 Ophiuchi - - -	49	34 26.41	T. 1		
		49	26.51	C. 1	−21 36 19.86	C. 1
311	Serpentis, 6066 -	50	47 57.42	T. 4		
		50	- - -	- -	23 54 43.68	M. 1
		50	- - -	- -	46.99	C. 1
312	4 Sagittarii - -	50	50 38.15	T. 1		
		49	- - -	- -	−23 47 47.84	M. 2
		50	37.95	C. 1	49.90	C. 1
313	Sagittarii, 6080 -	50	50 59.94	T. 4		
314	γ Draconis - - -	49	53 7.39	T. 3		
		50	7.34	T. 3		
		49	- - -	- -	+51 30 30.15	M. 1
		50	- - -	- -	30.90	M. 13
		49	7.44	C. 4	31.63	C. 3
		50	7.50	C. 4	29.20	C. 2
			18h.			
315	Sagittarii, (6161)	50	2 34.12	T. 3		
316	μ¹ Sagittarii - - -	49	4 47.50	T. 9		
		50	47.54	T. 17		
		49	- - -	- -	−21 5 32.49	M. 2
		50	- - -	- -	32.43	M. 13
		49	47.58	C. 1	33.59	C. 3
		50	47.49	C. 7	31.36	C. 2
317	ε Sagittarii - - -	50	14 12.67	T. 3		
318	λ Sagittarii - - -	49	18 42.64	T. 1		
		49	42.72	C. 1	−25 29 59.86	C. 1
319	δ Ursæ Minoris -	49	20 43.62	T. 17		
		50	44.19	T. 14		
		50	S.P. 43.35	T. 4	°	

18h.—Continued.

Number.	NAME.	Year.	R. A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
319	δ Ursæ Minoris -	49	- - -	- -	+86 35 50.76	M. 1
		49	45.48	C. 4	51.08	C. 1
		49	S.P. 43.86	C. 6	49.62	C. 3
		50	43.34	C. 11	49.51	C. 5
		50	S.P. 43.80	C. 3	52.63	C. 1
320	Sagittarii, (6304)	50	24 3.94	T. 1		
		50	- - -	- -	−24 12 46.07	M. 2
321	Sagittarii, (6314)	50	25 21.89	T. 1		
		50	- - -	- -	−24 19 51.66	M. 1
322	α Lyræ - - - -	49	31 51.48	T. 4		
		50	51.49	T. 21		
		49	- - -	- -	+38 38 48.90	M. 2
		50	- - -	- -	49.66	M. 17
		49	51.52	C. 12	50.16	C. 3
		50	51.54	C. 12	47.15	C. 4
		49	- - -	- -	50.41	P. 9
323	φ Sagittarii - - -	50	36 16.11	T. 2		
324	β Lyræ - - - -	49	44 32.46	T. 7		
		50	32.46	T. 18		
		49	- - -	- -	+33 11 29.33	M. 3
		49	32.48	C. 7	30.43	C. 4
		50	32.48	C. 8	29.19	C. 4
325	Sagittarii, (6461)	50	48	- -	−21 17 52.65	M. 1
326	35540, Lalande -	50	55 21.69	T. 1		
327	ο Sagittarii - - -	49	55 41.39	T. 1		
		50	41.69	T. 2		
		50	- - -	- -	21 57 20.96	M. 14
		49	41.38	C. 1	21.70	C. 1
328	Sagittarii, (6521)	50	57 34.15	C. 5	−27 53 5.18	C. 5
329	ζ Aquilæ - - - -	49	58 30.83	T. 6		
		50	30.92	T. 4		
		49	- - -	- -	+13 38 39.73	M. 2
		50	- - -	- -	40.76	M. 4
		49	30.96	C. 3	43.17	C. 1
		50	30.90	C. 2	37.98	C. 1
			19h.			
330	π Sagittarii - - -	49	0 50.49	T. 1		
		50	50.55	T. 2		
		50	50.38	C. 1	−21 15 23.87	C. 1
331	δ Aquilæ - - -	49	17 56.04	T. 8		
		50	56.01	T. 21		
		50	- - -	- -	+ 2 49 12.33	M. 11
		49	55.56	C. 14	12.06	C. 5
		50	55.99	C. 8	10.17	C. 5
332	h² Sagittarii - - -	50	27 34.54	T. 1		
333	Sagittarii, (6726)	50	30 48.26	C. 2	−23 45 49.26	C. 2
		50	- - -	- -	46.69	M. 2
334	Sagittarii, (6727)	50	31 5.65	C. 3	23 46 1.59	C. 4
335	ε² Sagittarii - - -	49	33 56.21	T. 1		
		50	56.24	T. 1		
		50	- - -	- -	−16 28 14.37	M. 1
		49	56.13	C. 1	15.49	C. 1
336	γ Aquilæ - - -	49	39 7.61	T. 13		
		50	7.61	T. 24		
		50	- - -	- -	+10 15 5.92	M. 1
		49	7.60	C. 7	6.24	C. 6
		50	7.65	C. 8	4.39	C. 4

° The observations upon which this result depends are found in the 6th hour.

19h.—Continued.

Number.	NAME.	Year.	R.A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
337	α Aquilæ - - -	49	43 27.77	T. 13		
		50	27.71	T. 25		
		49	- - -	- -	+8 28 33.25	M. 1
		50	- - -	- -	34.50	M. 6
		49	27.79	C. 16	34.73	C. 8
		50	27.78	C. 15	31.78	C. 4
338	β Aquilæ - - -	49	47 56.62	T. 12		
		50	56.65	T. 24		
		49	- - -	- -	+6 2 9.65	M. 3
		49	56.62	C. 10	9.23	C. 4
		50	56.63	C. 8	9.61	C 3
339	g Sagittarii - - -	49	49 26.26	T. 1		
		49	26.10	C. 1	−15 53 3.81	C. 1
	20h.					
340	α¹ Capricorni - -	49	- - -	- -	−12 58 2.65	M. 1
		50	9 19.75	C. 3	- - - - -	C. 1
341	α² Capricorni - -	49	9 43.59	T. 10		
		50	43.69	T. 6		
		49	- - -	- -	13 0 20.13	M. 3
		50	- - -	- -	20.14	M. 1
		49	43.59	C. 11	20.08	C. 2
		50	43.60	C. 8	20.35	C. 7
342	β Capricorni - -	49	12 34.62	T. 1		
		50	34.69	T. 1		
		49	- - -	- -	−15 15 2.00	M. 1
		49	34.68	C. 2	1.95	C. 2
343	λ Ursæ Minoris -	49	13 2.57	C. 3	+88 51 37.09	C. 2
		50	8 P. 2.27	C. 1		
344	π Capricorni - -	49	18 43.75	C. 1		
345	ρ Capricorni - -	49	20 17.85	C. 1	−18 18 18.19	C. 1
346	ν Capricorni, (7134)	49	31 30.21	T. 1		
		49	- - -	- -	−18 39 45.21	M. 1
		49	30.33	C. 1	40.31	C 1
347	α Cygni - - -	49	36 19.08	T. 7		
		50	18.99	T. 7		
		49	- - -	- -	+44 44 48.41	M. 1
		50	- - -	- -	47.79	M. 3
		49	19.07	C. 8	48.51	C. 3
		50	19.12	C. 6	47.25	C. 4
348	ε Aquarii - - -	49	39 33.16	C. 1		
349	μ Aquarii - - -	49	44 33.46	C. 1		
350	η Capricorni - -	50	50 51.75	T. 1		
		50	51.61	C. 2		
	21h.					
351	61¹ Cygni - - -	49	0 10.61	T. 11		
		50	10.53	T. 2		
		49	- - -	- -	+38 0 53.14	M. 2
		50	- - -	- -	53.36	M. 4
		49	10.54	C. 7	55.80	C. 4
		50	10.56	C. 2	50.52	C. 2
352	61² Cygni - - -	49	- - -	- -	+38 0 49.48	M. 2
		49	0 11.64	C. 1	52.83	C. 1
		50	12.08	C. 2	46.06	C. 1
353	ν Aquarii - - -	50	1 25.01	T. 1		
		50	25.06	C. 2	−11 58 33.81	C. 2

21h.—Continued.

Number.	NAME.	Year.	R.A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
			m. s.		° ′ ″	
354	ζ Cygni - - -	49	6 33.16	T. 11		
		50	33.15	T. 10		
		49	- - -	- -	+29 36 50.31	M. 2
		49	33.19	C. 9	51.30	C. 5
		50	33.27	C. 3	50.03	C. 3
355	Capricorni, (7374)	49	7	- -	−15 47 29.34	M. 1
356	ι Capricorni - -	49	13 53.21	C. 1		
		50	53.19	C 1		
357	α Cephei - - -	49	14 59.65	T. 6		
		50	59.67	T. 3		
		49	- - -	- -	+61 57 5.19	M. 2
		49	59.65	C. 11	6.67	C. 7
		50	59 70	C. 2	4.12	C. 2
358	Piscis Aust., (7458)	50	20 4.19	T. 1		
		50	- - -	- -	−31 53 17.06	C. 1
359	β Aquarii - - -	49	23 39.46	T. 10		
		50	39.52	T. 4		
		49	- - -	- -	−6 13 42.12	M. 5
		50	- - -	- -	42.37	M. 1
		49	39.49	C 12	39.45	C. 5
		50	39.53	C. 1	42.22	C. 1
360	β Cephei - - -	49	26 42.27	T. 2		
		50	42.31	T. 4		
		49	- - -	- -	+69 54 10.22	M. 2
		49	42.20	C. 5		
		50	42.34	C. 1		
361	Weisse XXI, 662	50	27 38.11	T. 1		
362	ε Capricorni - -	50	28 40.37	T. 1		
363	γ Capricorni - -	49	31 46.33	T. 2		
		49	- - -	- -	−17 20 13.07	M. 2
		49	46.35	C. 2	9.72	C. 2
364	κ Capricorni - -	50	34 16.37	T. 1		
365	ε Pegasi - - -	49	36 49.04	T. 9		
		50	49.04			
		49	- - -	- -	+9 11 24.01	M. 3
		50	- - -	- -	23.54	M. 5
		49	49.11	C. 14	26.02	C. 7
		50	49.00	C. 5	22.94	C. 5
366	δ Capricorni - -	49	38 45.27	T. 2		
		49	- - -	- -	−16 48 19.03	M. 2
		49	45.24	C. 3	19.23	C. 1
		50	45.29	C. 1	15.68	C. 1
367	42700, Lalande -	49	- - -	- -	21 50 44.76	M. 4
		49	47 15.48	C. 1	37.95	C. 1
368	Anonymous - -	49	- - -	- -	21 28 24.58	M. 1
		49	48 12.68	C. 1	22.79	C. 1
369	Anonymous - -	49	49	- -	21 50 42.51	M. 1
		49	- - -	- -	21 26 54.07	M. 3
370	Rumker XXI, 163	49	49 56.71	C. 2	50.11	C. 2
371	Aquarii, (7649) -	49	50	- -	21 53 44.78	M. 4
372	Anonymous - -	49	50 59	- -	20 43 6.85	M. 1
373	Arg. Zones, 237 -	49	- - -	- -	22 30 13.37	M. 1
		49	55 48.02	C. 1	12.44	C. 1
374	Anonymous - -	49	57.34	- -	20 29 59.30	M. 3
375	α Aquarii - - -	49	58 4.61	T. 3		
		50	4.62	T. 8		
		49	- - -	- -	1 2 45.32	M. 1
		50	- - -	- -	45.26	M. 4
		49	4.75	C. 2	47.39	C. 3

Number.		NAME.	Year.	R.A.	Inst. and No. obs.	DEC.	Inst. and No. obs.
		21h. —Continued.					
				m. s.		° ′ ″	
376	ι	Aquarii - - -	49	58 19.72	T. 2		
			49	19.82	C. 1		
			50	- - -	- -	−14 35 43.27	C. 1
377		- - - - - - -	50	58 44.87	T. 1		
			49	45.09	C. 2		
			50	45.12	C. 5	47 41 9.98	C. 2
378		Anonymous - -	49	59	- -	20 25 3.25	M. 1
379		43106, Lalande -	49	59 29.54	T. 1		
			49	- - -	- -	−22 19 18.36	M. 2
			49	29.99	C. 1	17.73	C. 1
		22h.					
380		Piscis Aust., (7714)	50	1 20.62	T. 2		
			50	- - -	- -	−33 16 57.05	M. 6
			50	20.46	C. 1	59.04	C 1
381		Anonymous - -	49	2 42.22	T. 2	+21.58	
382	λ	Piscis Aust., (1750)	50	5 47.99	T. 3		
			50	47.80	C 1	−28 30 28.14	C. 1
383	θ	Aquarii - - -	49	8 54.81	T. 1		
			49	- - -	- -	8 31 41.94	M. 1
			49	54.79	C. 1	39.67	C. 1
			50	54.89	C 1	34.46	C. 1
384		Aquarii, (7818) -	49	18	- -	17 30 6.55	M. 1
385		Aquarii, (7819) -	49	18	- -	17 30 11.91	M. 1
386	σ	Aquarii, (7840) -	49	22 42.27	T. 1		
			49	- - -	- -	11 26 37.13	M. 2
			49	42.27	C. 2	33.81	C. 1
387		Aquarii, (7861) -	50	26 12.37	C. 1	-10 22 49.17	C. 1
388	ζ	Pegasi - - -	49	33 58.87	T. 11		
			50	58.86	T. 12		
			49	- - -	- -	+10 2 59.73	M. 1
			49	58.88	C. 12	3 3.32	C. 5
			50	58.77	C. 2	3 0.02	C. 1
389		Piscis Australis -	50	34 0.77	T. 2		
390	λ	Aquarii - - -	49	44 47.16	T. 1		
			50	47.10	T. 1		
			49	- - -	- -	− 8 22 35.31	M. 1
			49	46.92	C. 2		
		22h. —Continued.					
				m. s.		° ′ ″	
391	α	Piscis Australis -	49	49 20.94	T. 2		
			50	20.91	T. 11		
			49	- - -	- -	—30 24 57.49	M. 3
			50	- - -	- -	56.92	M. 2
			49	21.00	C. 11	56.34	C. 5
			50	21.00	C. 11	56.63	C. 11
392	α	Pegasi - - -	49	57 17.51	T. 1		
			50	17.49	T. 11		
			49	- - -	- -	+14 23 59.00	M. 1
			50	- - -	- -	57.06	M. 2
			49	17.49	C. 9	59.69	C. 3
			50	17.51	C. 10	58.30	C. 8
393		Anonymous - -	49	58 4.84	T. 1	+14 8	
		23h.					
394	φ	Aquarii - - -	50	6 33.05	T. 2		
			50	33.11	C. 3	— 6 51 21.85	C. 2
395	ψ²	Aquarii - - -	50	11 9.27	T. 2		
			50	9.34	C. 3	—10 25 44.97	C. 3
396		Weisse XXIII, 602	50	29 9.69	T. 1		
			50	- - -	- -	+ 5 5 17.93	M. 2
397	ι	Piscium - - -	50	32 14.14	T. 5		
			50	- - -	- -	4 48 50.60	M. 3
			49	14.10	C. 2	48.93	C. 1
			50	14.21	C. 2	50.33	C. 1
398	γ	Cephei - - -	49	33 13.95	T. 2		
			50	14.24	T. 1		
			49	- - -	- -	+76 47 43.22	M. 2
			49	13.98	C. 3		
			49	S.P. 13.90	C. 1	43.97	C. 1
			50	14.26	C. 1	40.50	C. 1
399	20	Piscium - - -	49	- - -	- -	— 3 35 39.98	M. 1
			49	40 13.97	C. 1		
400	27	Piscium - - -	49	- - -	- -	4 23 16.07	M. 1
			49	50 59.55	C. 1	12.01	C. 1
			50	59.55	C. 1	17.88	C. 1
401		Piscium, 8368 -	50	56 39.47	T. 1		
402	33	Piscium - - -	50	57 39.26	C. 1	6 32 49.42	C. 1
403		Weisse XXIII, 1210	50	58 38.99	C. 1	12 51 27.88	C. 1
404		Anonymous - -	50	59 42.60	C. 1	—15 52 6.23	C. 1

ERRATA.

Page	No.	Col.	For—	Read—
2	8	6	45s. 0	55s. 0
5	3	3	ϑ Leonis	ρ Leonis.
5	4	2	7	9
6	23	13	—64s. 45	+64. 45
6	24	13	+63 . 54	—63. 45
7	10	11	1m. 37. 88	0m. 37. 88
7	10	15	9h. 2m.	9h. 1m.
7	11	11	1m. 40. 63	0m. 40. 63
7	11	15	9h. 2m.	9h. 1m.
8	27	2	Leonis	δ Leonis.
10	2	3	ν Bootis	υ Bootis.
10	32	11	26m. 3. 71	26m. 4. 71
11	31	13	62s. 65	62s. 25
11	43	3	γ Scorpii	ν Scorpii.
12	18	9	5s. 2	6s. 2
12	44	5	30s. 3	39s. 3
12	50	5	30 . 3	30 . 0
12	51	3	γ Scorpii	ν Scorpii.
13	10	11	38m. 24. 54	48m. 24. 54
13	37	15	5h. 29m.	5h. 24
13	50	12	1s. 57	1s. 51
13	52	12	1 . 16	1 . 15
14	18	3	ξ Aquilæ	ζ Aquilæ.
14	50	4	55s. 4	56s. 4
15	15	15	20h. 26m.	20h. 36m.
17	20	9	11s. 8	11s. 0
17	24	6	52s. 0	22 . 0
17	25	6	7s. 8	52 . 8
17	47	15	21h. 37m.	21h. 38m.
18	12	15	22 32	22 33
18	15	15	21 23 58. 63	21 23 38. 63
18	17	9	29s. 4	20s. 4
18	32	15	22h. 33 19. 35	23h. 33 19. 35
23	36	15	11 6 9. 76	11 6 8. 76
24	24	1	- - - - -	dele 15
24	25	1	- - - - -	lege 15
35	32	11	3m. 41. 61	2m. 41. 61
35	32	15	21h. 2 37. 81	21h. 1 37. 81

Page.	No.	Col.	For—	Read—
37	26	3	δ Ursæ Majoris	δ Ursæ Minoris.
51	13	11	25m. 51. 37	26m. 51. 37
51	13	15	15h. 25 38. 26	15h. 26 38. 26
53	34	11	57m. 17. 43	58m. 17. 43
53	34	15	21h. 57 6. 05	21h. 58 6. 05
59	31	11	51m. 47. 46	50m. 47. 46
59	31	15	16h. 51 58. 75	16h. 50 58. 75
70	8	11	6 57. 55	5m. 57. 55
153	47	9	+14 34 25. 14	+14 34 15. 14
161	18	9	+18 39 37. 02	—18 39 37. 02
177	14	8	10h. 36 4. 12	19h. 36 4. 12
200	19	3	^{1} Capricorni	α^1 Capricorni.

Page.	Col.	At—	For—	Read—
389	4	- - - - -	Dec. — 41° 24	Dec. + 41° 24
390	3	ο Bootis	13h. 32m. 42. 53	13h. 42m. 14. 53
391	3	- - - - -	β Libræ	β Lyræ.
399	2	- - - - -	Aquarii, (2551)	Geminorum, (2551)
400	2	β^1 Scorpii	15h. 56m. 3	15h. 56m. 43
400	2	Ophiuchi, 5846	—24° 50′ 38. 94	—24° 44′ 55. 68
400	2	μ^1 Sagittarii	—21 5 31. 85	—21 55 31. 85
400	3	α Cephei	—21h. 24. 59	—21h. 14m. 59
400	4	δ Capricorni	—16° 47′ 18. 30	—16° 48′ 18. 30
402	1	Polaris	+88 30 33. 39	+88 30 33. 89
402	1	Bootis, (4812)	19h. 26m. 2	14h. 26m. 2
402	1	Libræ, (4854)	19 34 34	14h. 34m. 34
403	3	β Aquarii	+ 6° 13′ 42. 27	— 6° 13′ 42. 27
408	1	α Herculis	+14 34 3. 36	+14 34 53. 36
409	1	υ Capricorni	+18 39 33. 73	—18 39 40. 31
405	1	β Orionis	— 8 23 41. 25	— 8 22 41. 25
406	3	Weisse X, 859	10h. 45m. 54. 37	10h. 46m. 54. 37
407	2	Anonymous	13 53 31. 16	13 54 31. 16
407	2	Anonymous	+28° 55′ 58. 19	+23° 55′ 58. 19
413	2	A. Z., 126, 47	17h. 3m. 35. 96	17h. 3m. 33. 96

N.T
JW